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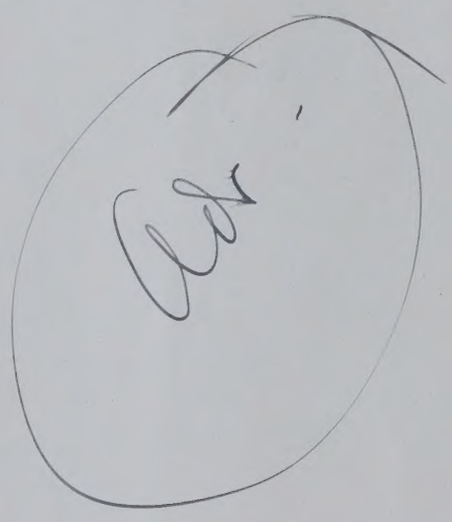
# THE GARDEN MAGAZINE



# THE GARDEN MAGAZINE

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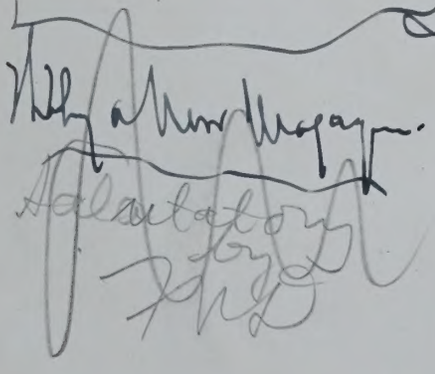

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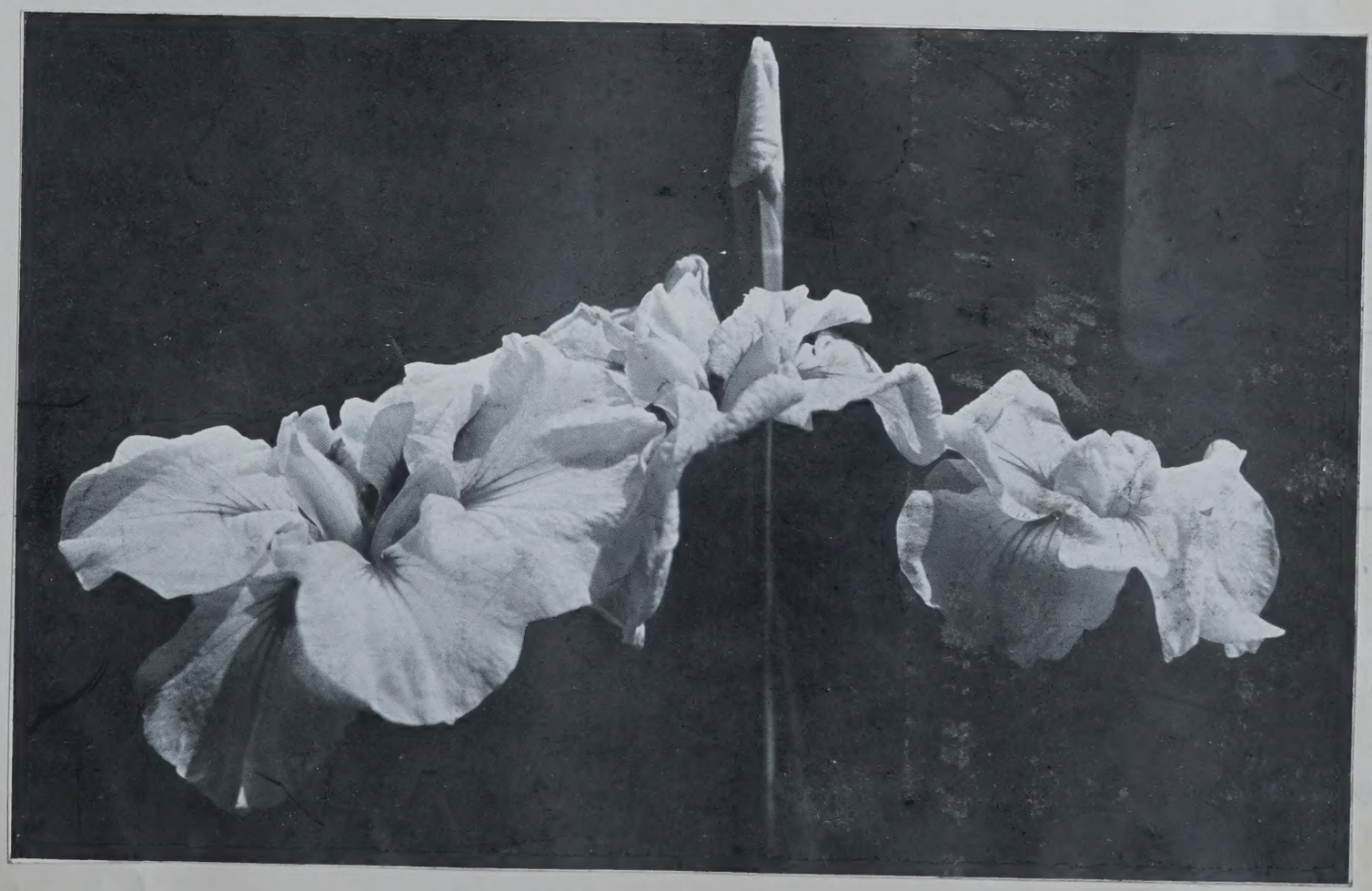

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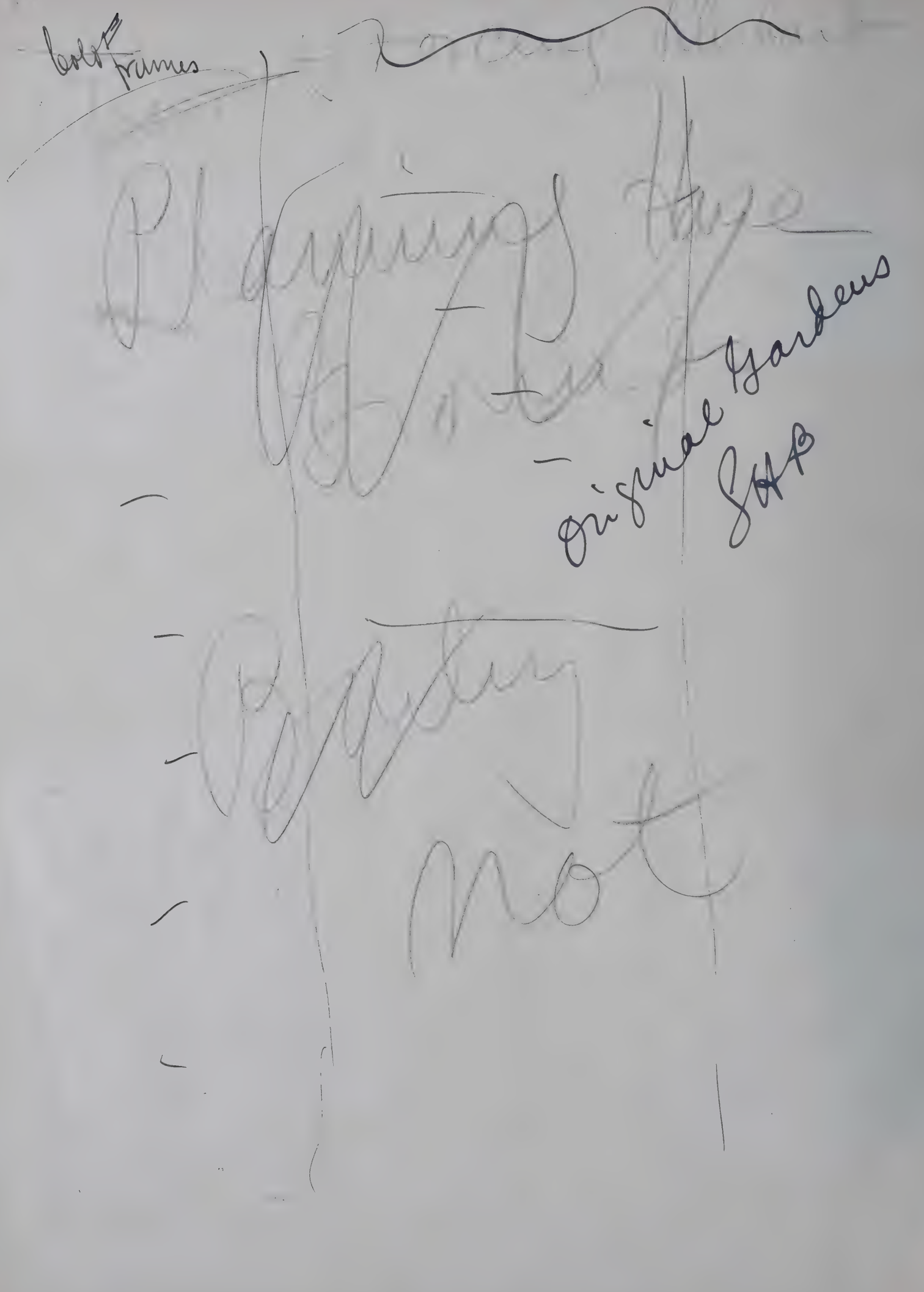
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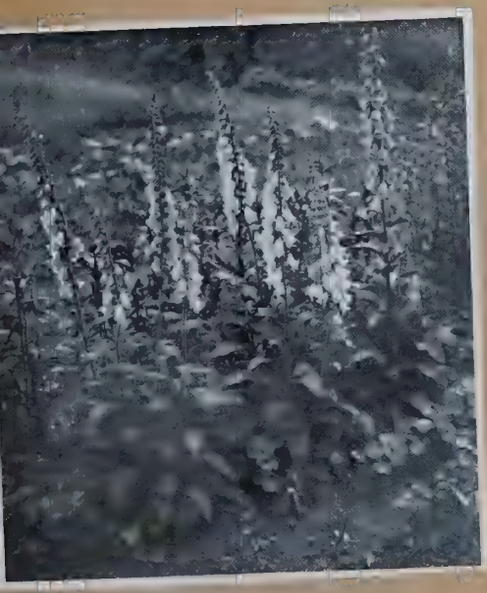

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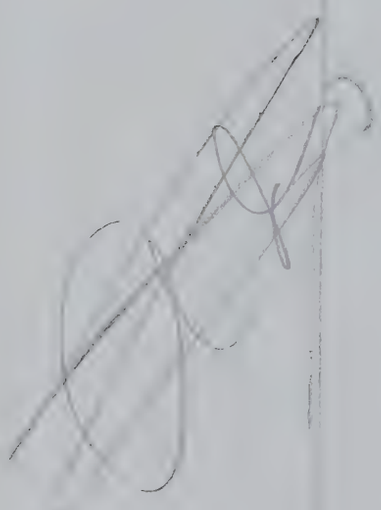

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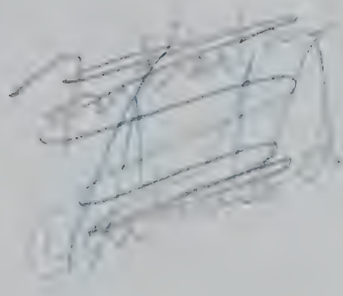

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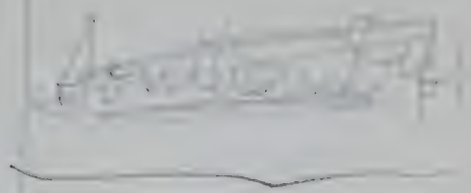

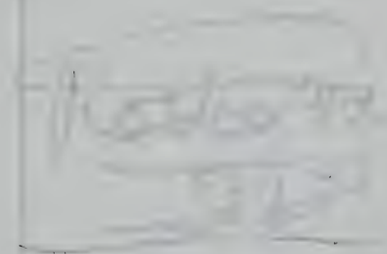

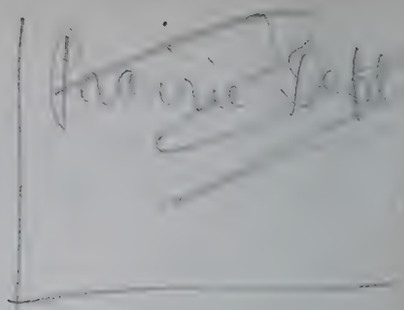

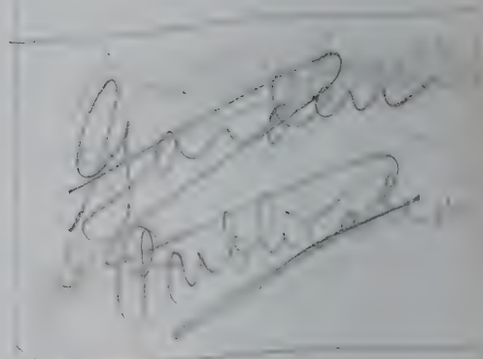

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No. 1 *An Illustrated Magazine on Practical Gardening* 10c.

TWENTY REGULAR DEPARTMENTS: THE GARDENER'S REMINDER; COLDFRAMES AND HOTBEDS; THE YARD GARDEN; VEGETABLES; BULBS; ROSES; ANNUAL FLOWERS; THE SMALL GREENHOUSE; THE WATER GARDEN; THE WINDOW GARDEN; GARDEN INSECTS; THE HARDY BORDER; RECENT DISCOVERIES; ETC.

# THE GARDEN MAGAZINE

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DOUBLEDAY, PAGE & COMPANY, Publishers, NEW YORK

# Doubleday, Page & Company's New Magazine

First Number — ~~Ready January 14, 1905~~ — February, 1905

FOR some reason unknown to us, the starting of a new magazine is regarded as an act of very reckless indiscretion; and now that we announce our third periodical, when **The World's Work**, our eldest-born, is but four years old, we expect reprimands from our best friends; but we ask a suspension of judgment while we explain:

We did not launch a new magazine till the idea that gave it life called aloud for expression and, in our opinion, readers stood ready to welcome it. **The World's Work** was needed for active-minded Americans who wanted the progress of the world interpreted and illustrated month by month in a healthy, earnest, and cheerful spirit. That the field stood ready was proved by a quick success; and the year just ended has been the most successful of its life.

Twelve months later—in 1901—the public seemed to demand a magazine like **Country Life in America**. Another real success followed. Its patronage (both the sale of copies and its advertising) has increased three hundred per cent. in its three years of life; and we think that we created a new kind of American magazine and a good kind. But not one friend in ten prophesied success for these two ventures. Yet we hope for a sympathetic interest in the third.

When **Country Life in America** was begun, forty-eight pages covered pretty well the interests of the magazine; now three times as many pages are inadequate. From every number during the past year we have omitted more matter that stood ready for insertion than we have printed; which is to say, that the subjects have grown much faster than the magazine's space could grow. The House-Building Number, the Christmas Annual, the country estates, the articles on sailing, fishing, animals, and birds, motor cars and other important out-of-door subjects have grown in number and interest. More has been printed about gardening than ever before, and in 1905 still more will be printed; yet we have not been able to satisfy the demand for garden-information and to keep the subject within reasonable proportions, doing justice to all the other topics, *because the interest in gardens is growing with overwhelming rapidity;* and our experience has convinced us that there is a wide demand for a periodical devoted exclusively to the garden. There exists no such magazine as the one we have in mind.

## The Material Ready

Every year members of our own staff take thousands of garden pictures of which we can print only a few hundred; the best authorities send us thousands of interesting and valuable contributions on the subject, and again we can use only a small proportion. If we do not use this excellent material, some one else will, for such a living, growing field will not much longer remain unoccupied. In our new building, we have all the facilities—editorial, photographic, and mechanical. Therefore, we announce the publication of

# The Garden Magazine

It will be printed on the best coated paper; on a page the size of this sheet. It will not be so large nor so luxurious as **Country Life in America**; and, being confined strictly to gardening subjects, it will not attempt to rival its elder sister. There will be from a dozen to twenty regular departments, in which all the chief sections of the garden will be practically treated. Each number will begin with a page devoted to "The Gardener's Reminder," pointing out the things to be done during that month, and the magazine will be delivered to its subscribers two weeks before the first of the month—in ample time to have the work well in hand. A list of regular departments will indicate its scope. There will be, of course, in addition, many other articles and illustrated features:

| | | | |
|---|---|---|---|
| **The Vegetable Garden** | **The Back-Yard Garden** | **The Small Greenhouse** | **The Window Garden** |
| **Coldframes and Hotbeds** | **The Lawn** | **Vines and Trailers** | **Annual Flowers** |
| **Garden Trees and Shrubs** | **The Bulb Department** | **The Hardy Border** | **Water Gardens** |
| **Roses** | **Garden Fruits** | **Recent Discoveries** | **Garden Insects** |
| **Spraying and Diseases** | **Answers to Queries** | **Canning and Preserving** | **New Plants** |
| **The Southern Department** | **California Department** | **Prairie Department** | **Etc., Etc.** |

~~To~~ Our Advertising Friends:

About December 5th we shall have a dummy ready to show just what the magazine will look like. If you would like a copy, please write us.

The utmost pains will be taken with this new magazine, as in the case of our other magazines, to properly print and care for the advertising intrusted to us. Coated paper throughout will add to the effectiveness of these advertisements. We will make cuts without cost when photographs are supplied, and aid by suggestions when requested.

We look for a broad and, if we may use the word, an intensive circulation, and our facilities are now adequate to get this circulation. This magazine will go to people who will read and reread, study and preserve, each copy because it will be a manual and guide to be used constantly. Its value is, therefore, twofold as an advertising medium.

The advertising pages will have three columns standard magazine width, 2⅝ inches, so that regular magazine copy can be conveniently carried. All advertisements will appear alongside of or facing reading matter. Size of page (420 lines), 10 x 8¼. The rates will be as follows:

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| **40 cents per line per month** | | **One half-page** | **$75.00** |
| **One page (420 lines)** | **$150.00** | **4 inches double column (1-2 magazine page)** | **40.00** |
| **8 inches double column (standard magazine page)** | **80.00** | **One-quarter page** | **37.50** |

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Our **Landscape Booklet** describes and illustrates results in adorning new, or remodeling old grounds. Both can be had upon request.

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# The Garden Magazine

VOL. I.—NO. 1 FEBRUARY, 1905 {ONE DOLLAR A YEAR / TEN CENTS A COPY

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## THE GARDENER'S REMINDER

[For the purpose of reckoning dates, New York city is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

### THE FIVE MOST IMPORTANT THINGS

*PLAN your garden;* make a diagram. *Send for catalogues now.* Order seeds, plants, and tools now, if you want better goods for the same money.

*Study fertilizers*, and decide what you want, where to get it, and how much to pay.

*Resolve to kill the bugs* this year. Study spraying, and get your spraying outfit now. Don't put this off till March. See the new department, "Killing the Bugs."

Build a coldframe and a hotbed.

#### OUTDOOR WORK IN THE NORTH

On pleasant days, prune apple-trees and grape vines. See article by Professor Craig.

Mulch strawberries and the hardy border; alternate freezing and thawing is deadlier than 10° below zero.

Manure the lawn, or better still, scatter bone-meal on the snow; it harbors no weed seeds. For details, see "The Fruit Garden" and "The Hardy Border," pages 00 and 00.

Haul out manure to the vegetable garden as fast as it is made, or else keep it under cover and fork it over every week.

Start in on any grading or draining you have in mind. Time will be too valuable for this next month.

Remove roots and stones. Possibly, the stones may help to make a good rockery.

Unless you have previously spread manure on the ground beneath the vines, shrubs, and evergreens, do it now.

#### HOW TO RAISE EARLY VEGETABLES

Make or buy a hotbed before February 1st, and you can have home-grown radishes in February. A crop can be raised in twenty-one days, if you know how!

*If you want fresh vegetables in May*, sow any time in February in hotbeds the following seeds, in order to have strong young plants to set outdoors April 15th, or whenever the danger of severe frost is past:

Early cauliflower, if you want the most delicious member of the cabbage tribe out of season.

Kohlrabi, one of the good things the Germans appreciate, and we don't know. Looks something like an above-ground turnip, but tastes better and has a flavor of its own.

Lettuce, next to radishes, the easiest and quickest crop. Will make heads in coldframes by May 1st.

Leeks, if you want to have your soups taste like anything.

If you care for young onions, crisp and tender, now's the time!

Tomatoes may gain a little on the season if transplanted into pots and kept pot-grown until settled weather (end of May), then turned out of pots into the open garden.

If you like a salad plant with a "tang" to it, try endive, and tie up the plants so they blanch. When you once acquire the taste, nothing else will do.

#### PUTTERING CHORES DOWN CELLAR

Look over potatoes, celery, vegetable roots, dahlias, cannas, gladiolus, and, if you are fortunate enough to have any, apples and pears.

Make the fruit cellar better, and have it separate from the vegetables. Read the two departments, "Canning and Preserving" and "The Fruit Garden."

Clean the rusty tools, sharpen the hoes; fix a new and attractive place for the garden implements. Mark a place for each one on the wall, if you like, so that nothing will be lost or misplaced. If you haven't a wheel-hoe, you are 'way behind the times! Get one now, and get enthusiastic about the best new garden-tool of the last century!

#### FLOWERS WITHOUT A HOTBED

Sow now in flats in the home window the following flower seeds:

To make the autumn red, scarlet sage or salvia.

To fill gaps in the hardy border, single dahlias.

For hanging-baskets, the cigar plant, *Cuphea flavæ*.

If you want it at all, now is the time to start ageratum.

For May bloom indoors, ten weeks' stock, *Matthiola incana*, var. *amœna*.

To cover permanent bulb-beds, after the spring flowers are gone, try verbenas.

For edging the garden walks, tufted pansies. If sown now, they will bloom all summer.

For a trailing-vine for a veranda-box, the variegated periwinkle, *Vinca minor*, var. *alba* or *aurea*.

If you want an annual vine on your porch, before the permanent ones are large enough to cover it, try *Cobœa scandens*.

For a part of the grounds where you want a big mass of color in September and don't mind the stakes, try cosmos.

For large specimen plants in twelve-inch pots for hall and porch decoration, sow seeds of cup-and-saucer Canterbury bells.

For a summer bed on the North side of a building, where there is plenty of air and diffused light without strong winds or direct sunlight, try tuberous begonias.

If you want a white-leaved foliage plant for a flower bed, sow seeds now of one of the dusty millers, *Centaurea cineraria* or *gymnocarpa*, the latter known to the trade as *Centaurea argentea* or *plumosa*.

### THE SOUTH AND CALIFORNIA

RASPBERRIES, strawberries, blackberries, pears and apples may be planted now.

Violet beds should have a weekly dose of fertilizer.

Plant sweet peas—the earlier they can start the better they will be.

*Vegetables which may be planted in the latitude of Baltimore.* Sow in hotbeds: cabbage, cauliflower, beets, lettuce, onions, radishes, egg-plant, peppers, and tomatoes.

In open ground, the last of the month, beets, carrots, celery, kale, parsley, radishes, onion sets, horse-radishes, and hardy lettuce plants.

*Vegetables which may be planted in the latitude of Norfolk.* Sow in hotbeds: egg-plants, and peppers.

In cold frames: cabbage, brocoli, cauliflower, endive, Kohlrabi lettuce, celery, parsley, and cress.

Outdoors: early potatoes, early English peas, carrots, beets, leeks, mustard, early radishes, and turnips. Set out cabbage plants started in November. Start cucumbers in pots for forcing.

The Japanese iris, largest of the family. Flowers nine to twelve inches across. A moisture-loving species. The flowers are flat—i. e., they have no upright petals

# THE BEST IRISES

By NELTJE BLANCHAN

Photographs by F. A. WAUGH

The Siberian iris, distinguished by its early season and tall, slender stalks. It blooms in May, or about two weeks before the German iris

LITTLE wonder that a plant so boldly decorative in outline and bearing a flower of exquisite coloring so marvelously formed should make its strongest appeal to the artistic Japanese. From these foremost gardeners of the world has come a strain of irises that neither orchids nor lilies can rival in beauty of form, texture, coloring, markings, and general effectiveness. In the Mikado's garden, under ideal cultural conditions—that is to say, in rich, warm, sunny alluvial land—the blossoms will measure from nine to twelve inches across their flat petals. Around the shores of those miniature lakes and streams in which the Japanese gardener, however humble, delights, the irises are no less lovely because a small garden demands that they be of lesser size. Every one appreciates the iris in Japan. Therefore, on the most costly *cloisonné* and ceramic, as well as on "many a vase and jar, on many a screen and fan," whose decorator may receive only an eighth of a cent for his sketchy painting, this flower, imperial and democratic, is the most familiar. For the artist, at least, its value is double that of the national chrysanthemum.

Yet the *Iris Kæmpferi* may be as easily grown as the potato. Moreover, it is perfectly hardy. High, dry lands do not suit its moisture-loving roots, but good garden soil, enriched with thoroughly decayed manure, deeply dug in and well-watered during May and June—the blossom months in the northeastern United States—will produce flowers of wonderful size. Do not select a shady place for your irises. They thrive under full exposure to the sun, but moisture they must have to bloom their best, and sometimes their roots will penetrate two feet deep to get it. Naturalized in the water garden, where the tall, narrow blade-like leaves rise in phalanxes around the shore, and the stately beauty of the flowers is reflected in the mirror below, they are ideally situated; but let no one forego the delight of growing Japanese irises merely because he has not a pond or stream on his place. Some exceedingly fine specimens have been produced in a city back yard.

Now that the Occidental, as well as the Oriental, hybridizers produce an enormous number of seedlings every year, new varieties are constantly offered in the catalogues; so many that, were their charms described in Japanese, they could scarcely be more bewildering to the American amateur. The original parents of Kæmpfer's lovely tribe were *I. lævigata* with drooping "petals," modeled on the natural rule-of-three plan, and *I. setosa* with broader, more horizontal "petals," the three outer and the three inner

ones being of equal size in many of its new varieties, giving a strange regular symmetry to the flower. The pernicious trick of doubling and multiplying "petals"—a common vice of the up-to-date sport—quite destroys the iris's natural grace of outline, which is its chief characteristic and charm. Blotches and patches of color like a circus pony's sadly detract from its stately dignity. Surely the range of pure colors, from silvery white, through pale blue, lilac, plum, and purples, with exquisite veinings and star-like centers of contrasting shades or of gold, should satisfy the most exacting eye.

German irises differ from the Japanese in having shorter, broader blade-like leaves and flowers not yet induced to lie flat, having three strongly recurved and handsomely marked "petals" or falls, and three upright standards. Both kinds have creeping stems, and it is by division of these fleshy, thong-like roots that the plants are most successfully propagated. Set out early in the autumn, they should bloom the following May. It takes at least three years to produce flowers from seed—an interesting experiment for the amateur hybridizer, but one rarely tried except by commercial men. While not so impressively magnificent as the Japanese strain, the German irises are nevertheless very beautiful; their coloring including white, yellow, lilac, and purple—either one of which every iris would be in a state of nature—and, in addition, some queer browns and rich velvety maroons combined with yellows which are unusual and effective.

We hear of the common blue flag. In reality it is not a blue but a purple. Yet there is a little dwarf iris, a variety of the Crimean *Iris pumila* and *I. Persica*, which are true blue—that heavenly color all too rare in our gardens.

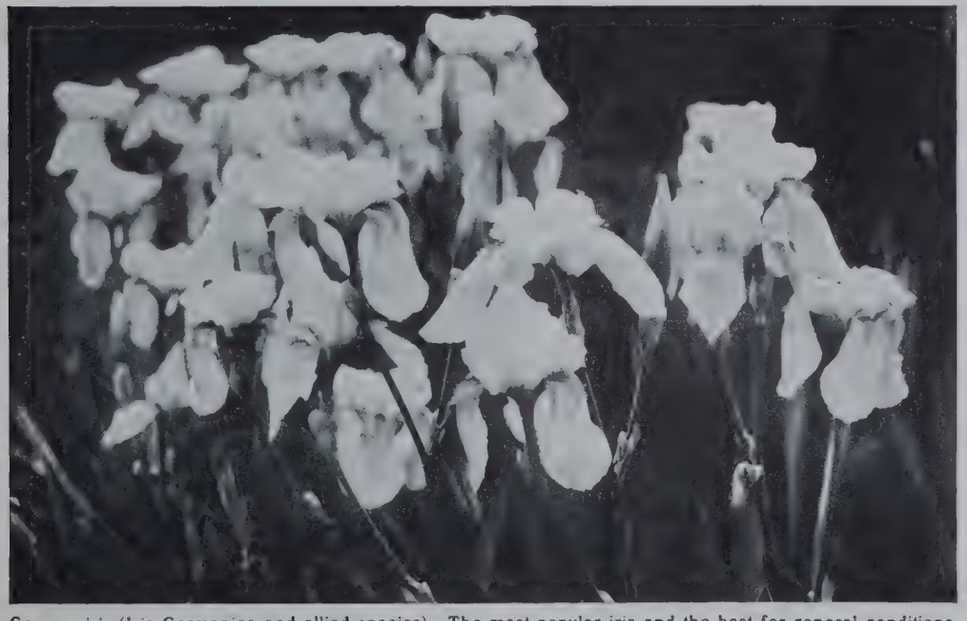
No plants are of easier culture than the German irises. They like a dry soil, rich food, a sunny, open situation, and plenty of room to spread, but they do not insist upon any of these conditions. Neglect them, starve them, crowd them among the shrubbery, stifle them in the herbaceous border, bury them in the rock garden, still they will bloom—sulkily, perhaps, but far more than they really ought, considering. Give them a rich dinner once a year, and let them alone thereafter, they will repay you most lavishily. Just as the gorgeous pageant of Dutch bulbs—jonquils, narcissi, and tulips—passes, the German irises begin their royal show, several weeks before their Japanese sisters unfurl their banners. Special emphasis should be laid upon letting all irises alone. They resent being fussed over. If it is necessary to divide a clump, cut it in half with a sharp spade and fill in the hole with old, well-rotted manure. Don't disturb the entire clump in order to take away part of it, and don't bury the rhizome when you plant the root.

On the streets of London and Paris, and in the market-places of Western Europe are sold bushels of the very beautiful Spanish irises, whose charms are not yet appreciated here as they deserve to be. In loose, friable garden soil, in a sheltered corner, they yield a lovely crop of flowers to cut for the house. More dainty than the larger German and Japanese irises, they are airily poised like butterflies on the tip of tall, slender swaying stems amid narrow grass-like blades. Secure a ribbon of soft lead from your plumber, place it in the bottom of a bowl, pinch it about the iris stems, and so arrange a few that they appear to be growing out of the water. Pebbles conceal the lead and help the illusion. From the Japanese we are slowly learning not to bunch a miscellaneous lot of cut flowers in wads for our vases, but to give each flower its natural, characteristic attitude and isolation.

English irises, another group of these endlessly beautiful plants, grow from bulbs like the Spanish strain, but in form and poise the flowers more closely resemble the Japanese. Coming toward the end of the iris season, which they prolong until the hot weather, they are especially desirable for those who tarry too long in the cities to enjoy the spring flowers about their summer cottages. Bulbous irises suffer from moisture and bleak exposure. A dry soil, even clear sand at the base of the bulbs, preserves them from decay, and, while they must be well nourished if they are not to fail utterly, let no manure come in direct contact with these. The rhizomatous irises are the gross feeders.

Certain irises there are that should be in every garden. No one is too poor or too inexperienced to have at least one fine clump of Japanese or German irises; for instance, the early grayish-white Florentine "orris" (whose dried root furnishes the sachet of commerce), with its large grayish-white flowers, often six inches deep, the falls veined with yellow and green at the base with an orange-yellow beard; or *I. variegata*, with large, slightly-scented flowers, their standards bright yellow, their falls claret-red heavily veined. The yellow flag of England, *I. pseudacorus*, is delightfully decorative and cheap enough to naturalize in quantities with our own native species, where one is so fortunate as to own a stream. In similar situations, or even in ditches, the small but showy Siberian flag in blue, white, and purple varieties is a charmer. And now that irises are being so successfully forced in the greenhouses, there is not a month in the year when we may not have them in our homes.

A German iris. Of the six showy parts, the three outer, which are reflexed, correspond to the calyx; the three inner or incurved ones to the petals



German iris (Iris Germanica and allied species). The most popular iris and the best for general conditions

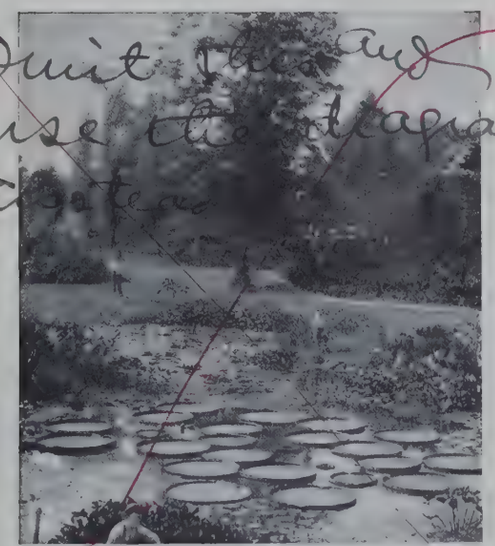
A WATER-LILY HOUSE THAT COULD BE DUPLICATED FOR $4,000. IN SUCH A HOUSE, A BUSINESS MAN MIGHT GROW THE KINDS THAT BLOOM FROM 8 TO 12 P. M.

# FROM DINING-ROOM TO TROPICS

A NEW IDEA FOR A GARDEN OF NIGHT-BLOOMING WATER-LILIES TO SURPRISE ONE'S GUESTS AFTER DINNER

By FRANK H. PRESBY

A two-page article with large photographic illustrations

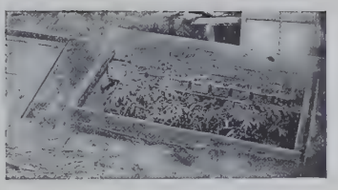


—Victoria regia, with its wonderful upturned leaf margins. There is another kind of Victoria which can be grown outdoors in the middle South without artificial heat

# HOW TO PRUNE THE HOME GRAPEVINES

By JOHN CRAIG

A two-page article by the Professor of Horticulture in Cornell University, with photographic illustrations showing before and after pruning



# HOW TO GET EARLY VEGETABLES without a greenhouse

AN AMATEUR'S EXPERIENCE WITH A COLDFRAME—FRESH VEGETABLES A MONTH EARLIER THAN THE NEIGHBORS

By JULIAN BURROUGHS

With many small photographs showing different home-made devices for transplanting seedlings

# ~~HOW TO~~ PLAN THE ~~HOME~~ VEGETABLE GARDEN

THE BEST WAY TO RUN THE ROWS—HOW TO AVOID THE SPRING RUSH—THE DIFFERENT ~~SCHEMES~~ FOR SAVING SPACE, AVOIDING HAND LABOR, AND GROWING ~~THREE~~ CROPS ON THE SAME GROUND

By EDITH LORING FULLERTON

A ~~four-page~~ article with detailed diagrams

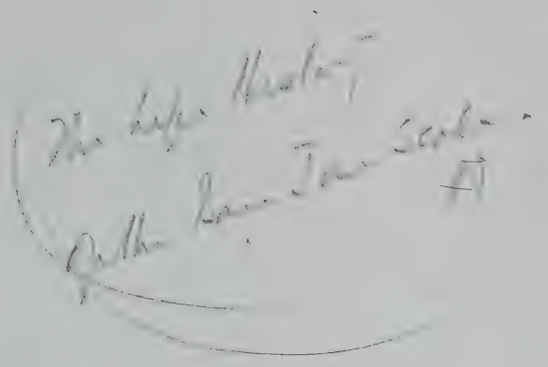
Two or more

# STRAWBERRIES UNDER GLASS

HOW TO HAVE FRESH, LARGE, HOME-GROWN STRAWBERRIES, FULL OF AROMA AND FLAVOR, EVERY MONTH FROM DECEMBER TO MARCH—A FAR DIFFERENT PROPOSITION FROM SOUTHERN STRAWBERRIES

By C. E. HUME

A two-page article by the one man in America who has mastered the subject



# A WILD GARDEN IN A SMALL CITY YARD

By FLORENCE BECKWITH

# ALL THE FOXGLOVES WORTH CULTIVATING

THE FIRST OF A SERIES OF "LITTLE MONOGRAPHS" OF GARDEN GENERA, WRITTEN BY SPECIALISTS FOR THE EXPERT GARDENER, WHETHER AMATEUR OR PROFESSIONAL

By F. A. WAUGH

A new type of horticultural writings which will be hailed with delight by every connoisseur who wants to get the latest and most complete information about any particular group of plants

# THE BEST HARDY EVERGREENS FOR EVERY PLACE AND PURPOSE

By HENRY HICKS

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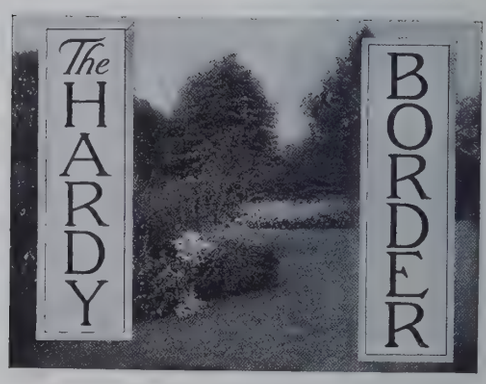
ANNVAL FLOWERS

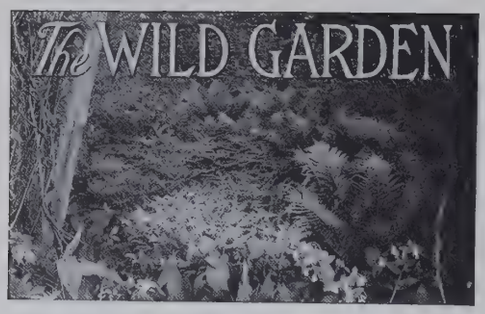

The
HARDY
BORDER

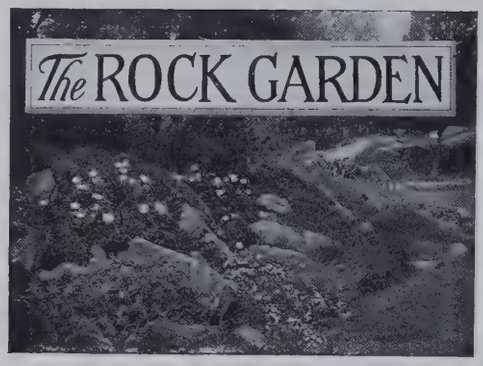
The
FRUIT
GARDEN

EVERGREENS

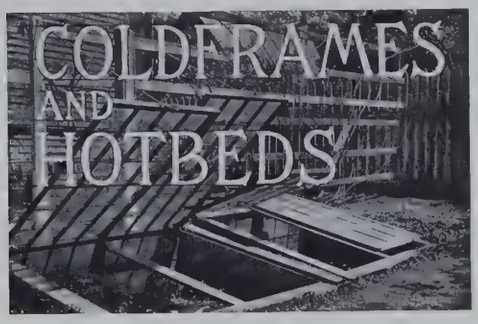
VINES
and TRAILERS

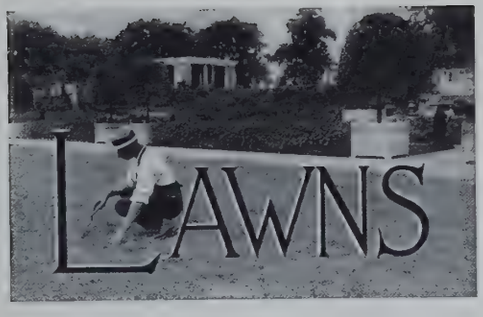
The WATER GARDEN

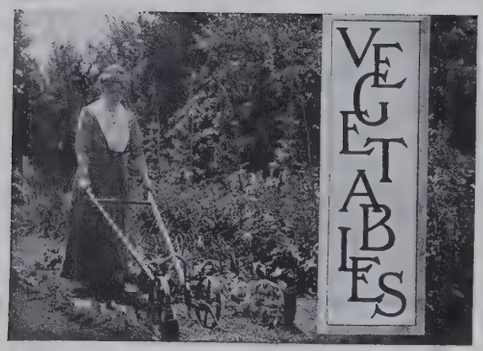

The WILD GARDEN


The ROCK GARDEN

CACTI and
DESERT PLANTS


COLDFRAMES
AND
HOTBEDS


LAWNS




*And many more departments, Twenty-eight altogether, including The Window Garden, Fertilizers, Garden Implements, Canning and Preserving, The Back Yard Garden, Killing the Bugs, Novelties and Rarities, Southern Department, Prairie Department, Answers to Queries, and Recent Discoveries.*

# "EVERYTHING FOR THE GARDEN"

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WIN

## GOLDEN OPINIONS

**Henderson's Superior Seeds Yield Superior Products.**

*"I used your seeds along with many different growers' seeds in the spring, and can truthfully say that Henderson's Seeds yielded more than twice the crop of any other."* WM. KELLY, Paterson, N. J.

*"I was prevented from sending my usual order to you last spring, but the results from seeds obtained elsewhere were so distinctly inferior to what I have been accustomed to secure with your seeds, that I return to you."*
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**Henderson's Superior Seeds Retain Our Customers for Decades.**

*"Seeds and plants give entire satisfaction. I believe myself to be one of the oldest customers of your firm—I was a student in New York during the years 1849-50—returning home I purchased at your store and have dealt with you ever since."* Dr. GEO. T. BINGAY, Westport, Nova Scotia.

*"I have dealt now with your firm for over 30 years, and I safely assert that after trying various other seedsmen during that period, I have always returned to Peter Henderson & Co., as the most reliable firm in its dealings."*
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**Henderson's Superior Seeds Have the Confidence of Buyers.**

*PETER HENDERSON & CO.,*
*Gentlemen:—Please send me as soon as possible 10 bushels of Red Top Grass Seed, 5 bushels of Orchard Grass Seed and 5 bushels of Winter Rye. I intend to sow this upon my place, and am very anxious to have it clean and pure, and for this reason I send to you, believing that in this way I am most likely to receive just what I want. The land is not the best, and the proprietor knows but little about farming, hence the seed must be very good. Yours truly,*
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**Henderson's Superior Seeds Produce the Prize-Winners.**

*"Am pleased with your seeds; I have taken first premiums on best collections of vegetables raised by gardeners here for the last five years. I also took many separate premiums on specimens such as your Succession Cabbage, etc."*
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*"I have much pleasure in telling you that I have won eight prizes at the Horticultural Show here, for vegetables and flowers grown from your seeds"*
J. M. HETSON,
Harbor Commissioner's Office, Montreal, Can.

**Henderson's Superior Seeds Recommended by Old Customers.**

*"At the close of a prosperous season in gardening operations, I cannot refrain from expressing my appreciation of the superior quality of your seeds and the product of the same. If a single seed failed to germinate, I do not know it, and the fruits proved quite true. I deem it a duty I owe your house, in consideration of the quality of your goods and the gentlemanly manner in which you have always treated me, to make this fact known to my friends, and to secure for you as many* **new** *customers as possible, as I am morally sure that your old customers need no solicitation."*
HENRY L. GRANT, Grafton, W. Va.

**Henderson's Superior Seeds Bring Forth Press Comments.**

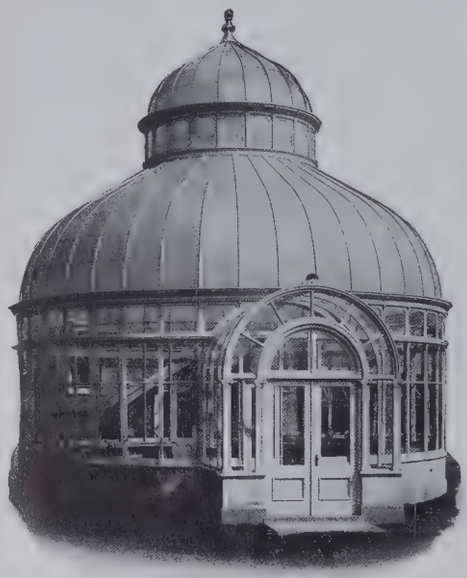
*"We take pleasure in noting the beautiful catalogue, 'Everything for the Garden,' from the old and trustworthy house of Peter Henderson & Co. The sterling worth of the firm's goods is too well known to require amplification." — Extract from "Rural New Yorker."*

*"Henderson's Catalogue is on our table. This publication represents one of the oldest seed houses in America, and one that does an immense business. The name of Peter Henderson & Co. is a household word wherever flowers and vegetables are grown and gardens planted."—"Kansas City Star."*

## HENDERSON'S CATALOGUE
# "EVERYTHING FOR THE GARDEN"

This peer of all Catalogues is handsomer than ever for 1905. It contains much gardening information as well as our offerings of Seeds, Plants, Bulbs, and Gardening Implements. WRITE FOR IT.

## PETER HENDERSON & Co., 35-37 Cortlandt Street NEW YORK



Exterior view of Palm House designed and erected for Dr. Leslie D. Ward, Madison, N. J.

## The Charm of the Garden

can be retained during the winter months by having it inclosed in glass, either in the form of a conservatory attached to the residence, or a separate greenhouse.

¶ We manufacture and erect our horticultural structures in many types and of any dimensions.

¶ Write and tell us about what you would like, and we will prepare sketch and estimate free of charge, and submit for your consideration.

*Write us to-day.*

**WE MANUFACTURE AND ERECT**
**Every Type of Greenhouse Structure**

**THE PIERSON-SEFTON CO.**
**HORTICULTURAL ARCHITECTS and BUILDERS**
**West Side Ave., JERSEY CITY, N. J.**

Interior view of Palm House illustrated above.

*Text*

(Set No. 52 at $10.00.)
**Standard Size and Very Best Quality**
**CARPENTERS' TOOLS**
**Admirable for**
**HOME BUILDERS**

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| 5 OUTFITS— | No. 53.....$15.00 |
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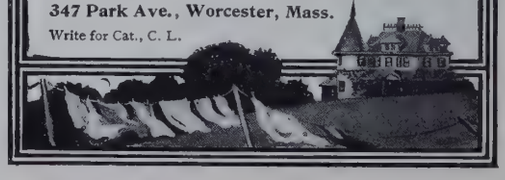
**Ask for Catalogue No. 1380**
See our adv., Builders Hardware, page 594, this issue.
**HAMMACHER SCHLEMMER & CO., since 1848**
NEW HOME AFTER OCTOBER
**Fourth Ave. and 13th St., New York City**

*Specimen Advertisements*
*Quarter-page, Regular Magazine Size*
*(Four-inch Single Column*

**Beautiful Lawns**
Are the pride of the home; why disfigure with ugly clothes posts.
**Hill's Lawn Clothes Dryers**
hold **100** to **150** feet of line, take small space, and are quickly removed when not in use. Make a neat and tasty appearance, last a life-time.
**More than two million people use them.**
No traveling in wet grass. No snow to shovel. The line comes to you. Also
**Balcony and Roof Clothes Dryers.**
If not found at your hardware store, write
**HILL DRYER CO.**
**347 Park Ave., Worcester, Mass.**
Write for Cat., C. L.



WEIGELIA FLORIDA SIEBOLDI ALBA VARIEGATA
Sample of Our 2½ x 3 Specimens

# Prepare for Planting Now

¶ The beautifully illustrated catalogue of the **COTTAGE GARDENS COMPANY** will be mailed upon application.

¶ You will notice in the photograph shown of plant dug from the nurseries of the

## *COTTAGE GARDENS COMPANY*

the system of fine, fibrous roots with which the plant is furnished. This system of roots has been obtained by repeated transplanting and root-pruning, thus putting the plant in a condition for removing to its permanent situation with almost no percentage of loss. The plant practically guarantees itself. The trees in the Nursery are treated in the same manner as the shrubs.

¶ Consultations will be entered into, suggestions made, and plans furnished for the development of entire estates. Competent men will be furnished for all branches of the work. A query addressed to this department will receive immediate attention.

COTTAGE GARDENS COMPANY
QUEENS, LONG ISLAND, NEW YORK


*Specimen Half-page Advertisement*

# ORCHIDS

WE are headquarters for ORCHIDS. We collect, import, grow, and sell *Orchids* EXCLUSIVELY. We are prepared to stock entire Greenhouses with these plants at moderate prices, and guarantee satisfaction.

OUR ORCHIDS ARE THE BEST AND FINEST THAT CULTURAL SKILL CAN PRODUCE

If you contemplate buying *Orchids* in small or large quantities, we respectfully solicit your orders

*Write for beautifully illustrated orchid catalogue*

LAGER & HURRELL

*Orchid-growers and Importers*

SUMMIT, NEW JERSEY

*Specimen Advertisements*
*Half-page, Regular Magazine Size*
*(Four-inch Double Column)*

*Text*

JAPANESE TREE

# Peonies

¶ We have just received from our Japanese agent the finest collection of these handsome plants that were ever imported. They should be grown in every garden; the flowers measure 6 to 8 inches in diameter, and range in color from the most delicate pink to the brightest scarlet, lavender, maroon, pure white, and delicate lavender. They are very hardy and will stand our severest winters.

Price, each, $1.00; per dozen, $10.00; collection, 20 varieties, $15.00. Delivered free anywhere in the United States

50 Barclay St. STUMPP & WALTER CO. NEW YORK

*"We are advertised by our loving friends."*

Mellin's Food

Gordon Dorsey Wier.

I enclose a photograph of my son Gordon, who was born June 14th, 1903. He has been fed on MELLIN'S FOOD since he was 3 weeks old.

You can readily see from the photograph that I have had no occasion to regret its use. He has never been sick an hour in his life.

His weight at present is a fraction above 30 lbs. *M. C. Wier.*

A LIBERAL SAMPLE OF MELLIN'S FOOD SENT FREE TO ANY MOTHER.

MELLIN'S FOOD COMPANY, BOSTON, MASS.

*Specimen Full-page Magazine Plate—Standard Size*
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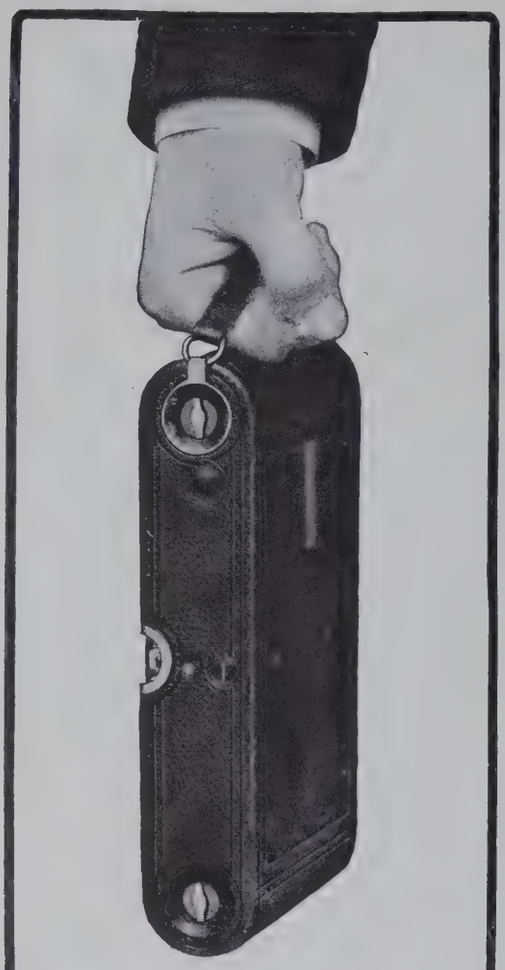

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Progress.

Whatever is new and desirable in picture taking is found in the Kodak System—Non-Curling film, daylight development—absolute simplicity.

Ask your dealer, or write us for the 1904 Kodak Catalogue. It's an illustrated photographic news letter from Rochester, the Home of the Kodak.

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*Kodaks $5.00 to $97.00*

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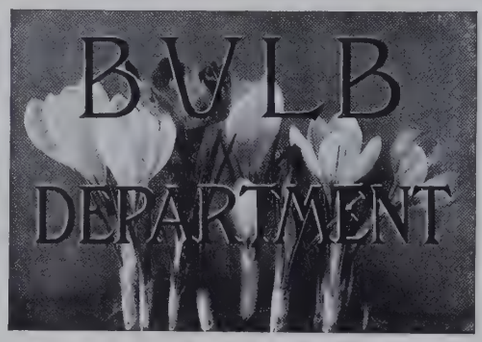


*Text*

# Wanted Department

A special low rate is made in this department for the convenience of readers to advertise for a gardener, or for gardeners to offer their services.

WANTED—Situation as superintendent on private place; 3 years in last position (one of the best in the country). Testimonials and references of the highest character, which will bear the strictest investigation; Scotch, age 31. Apply K. F., care The Garden Magazine.

SITUATION wanted by greenhouse man; 12 years' experience in general greenhouse work. When writing, state wages and particulars. Address K. B., care The Garden Magazine.

SITUATION wanted on private place; 5 years' experience in roses, carnations, orchids, and general stock. Address E. B., 214 W. 69th St., New York.

GARDENER wanted on private place near Boston. Must thoroughly understand flowers and vegetables. Address R. M. M., care The Garden Magazine.

COMPETENT GARDENERS. The comforts and products of a country home are increased by employing a competent gardener; if you want to engage one, write to us. Please give particulars regarding place and say whether married or single man is wanted. We have been supplying them for years to the best people everywhere. No fee asked. PETER HENDERSON & CO., Seedsmen and Florists, 35 and 37 Cortlandt Street, New York City.

*Specimen Want Advertisements*

With Horsford's Hardy Plants

When once established, there is little trouble in having an Old Fashioned Garden. Plants grown in Cold Vermont do not have to be replaced each year, and will grow and thrive in cold as well as in warm climates. From his catalogue

**You may fit any soil, wet or dry, sun or shade,**

with Plants, Shrubs, Hardy Ferns, Home-grown Lilies, Trees, Vines, Bulbs, etc.

Descriptive spring catalogue sent for a 2c. stamp. Autumn Supplement of Bulbs and Plants for Autumn setting, sent out about the last of August, free to all who ask for it. Address

FREDERICK H. HORSFORD
Charlotte, Vermont

Make Your Grounds Beautiful

AND GARDENS USEFUL

¶ EVERGREENS AND CONIFERS, suitable to plant now, in any part of the country. All our stock is dug with a large ball of earth, filled with roots, and wrapped with burlap.
¶ SHADE TREES AND FLOWERING SHRUBS that will grow everywhere; a variety adapted to any locality.
¶ FRUIT TREES, in all kinds and varieties. Don't fail to plant Trained Trees. We have a large quantity.
¶ OLD-FASHIONED FLOWERS.—The largest collection ever held in America is now growing in our nurseries. An idea of its extent can be had by reviewing our Hardy Plant Catalogue.
¶ HARDY RHODODENDRONS, we have in large quantities. Now is the proper time to plant.

BOBBINK & ATKINS
Nurserymen and Florists RUTHERFORD, N. J.

Phlox at the World's Fair, exhibited by Ellwanger & Barry

PHLOX PEONIES

ANEMONES

¶ Choicest varieties—finest plants, collections of fruit and ornamental trees, shrubs, roses; the most complete in this country. *Catalogue and Colored Plates on request.*

ELLWANGER & BARRY,
Nurserymen-Horticulturists, 65th year,
MOUNT HOPE NURSERIES, - ROCHESTER, N. Y.


*Specimen Advertisements*
*Quarter-page*

**Altho'** we received a *Gold Medal* at the *World's Fair at St. Louis* for our beds of *Everblooming Roses* (which is better than we had expected among so many larger exhibits) **Nevertheless** we sell equally good stock in

**Trees, Shrubs, and Hardy Flowers**

in sizes for immediate effect. Of 10,200 trees delivered to one customer last spring, only 3 or 4 have failed. A visit to our grounds will show you why our trees grow.

S. G. HARRIS, TARRYTOWN, N. Y.

# "Blood Will Tell" and so will Armour's Animal Fertilizers

THEY will tell the story of improved quality, increased yields, and larger profits from crops grown in soil built up and fertilized by them.

¶The plant food contained in their Blood and Bones is available as needed by the growing crop and without loss from leaching. Their chemical make-up is such that they sweeten soil, make humus, open up clays, bind together sandy loams, and work "days, nights, and Sundays" for their owner, whether he be

**Florist, Gardener, Planter, Fruitman, Dairyman, Stockman, or Grain Farmer**

*Buy them and see how it is for yourself*

ARMOUR'S FARMER'S ALMANAC tells you more about them. You should have a copy—it's yours for the asking. Ask

THE ARMOUR FERTILIZER WORKS

(Owned and Operated by Armour & Co.)

*Chicago, Baltimore, Atlanta, Jacksonville, Los Angeles, Kansas City, Omaha, East St. Louis, Fort Worth, Savannah, Nashville, Wilmington*

*Specimen Half-page Advertisement*

PHOTOGRAPHED AT ANDORRA

# ANDORRA'S PEONIES

## HAVE BEEN PLANTED FROM MAINE TO CALIFORNIA

THE stately beauty of their bloom in such an infinite variety of colors makes them indispensable for every garden. Many of them have the delicate fragrance of the rose, and, seen in masses against a background of dark foliage, produce a magnificent effect. The fact of their being so hardy and easily grown makes possible the successful cultivation of the Peony in all the United States.

For fifteen years, Andorra has made a specialty of the Peony. We carry a stock of 20,000 plants, and from the hundreds of tested varieties offer sixty sorts of real merit. We can select collections that will bloom from early May to the end of June.

### SPECIAL OFFER

**Six named sorts, our selection,** { **$ 2.50 per doz.** / **9.00 per 50** / **16.50 per 100**

**Twelve named sorts, our selection,** { **$ 3.50 per doz.** / **13.50 per 50** / **25.00 per 100**

*Ask for Booklet, "Peonies"*

# HARDY PHLOX

THIS glorious family of hardy perennials is, perhaps, the most widely known and popular of all the various plants which we have in our gardens, and each year finds the newer and showier varieties increasing through the hybridizer's skill. Certainly, no perennial is more worthy of culture, more satisfactory in every situation, or more effective either as individual plants or grouped in masses in the shrubbery beds. From the time the plants begin to bloom, the garden borders can be kept aflame with great cone-flowers of brilliant colors, and they fill in the season when other flowers are scarce. We offer 30,000 plants in over forty varieties.

*Ask for "Booklet Phlox"*

### SPECIAL OFFER

**Field-Grown Plants,** - - - - - { **$ 2.00 per doz.** / **15.00 per 100**

*Ask for "Booklet Phlox"*

PHLOX AS A BORDER PLANT AT ANDORRA

A PORTION OF OUR PHLOX BEDS

# ANDORRA NURSERIES, Chestnut Hill, Philadelphia, Pa.

WM. WARNER HARPER, Proprietor

# The Garden of Hardy Flowers

THE almost entire exclusion of the great wealth of hardy plants from American gardens in favor of a few—hardly a score—of tender ones has so impoverished them of all real beauty as to make them monotonous. In almost every garden are seen the same stereotyped carpet and ribbon beds, mere lines of color, that are as unchanging during their season of four months as the patterns of carpet and that perish entirely with the first frost. The entire labor and expense is renewed the next season, and the annual outlay is limited only by one's willingness or ability to pay.

Hardy flowers have all the artistic advantages and all practical ones as well. Their first cost being their only cost, and their greatly increasing in size and beauty year after year, makes an investment in them yield an annual dividend of loveliness not to be computed in any ordinary way.

With this grand June overture to summer, our garden follows quickly with a succession of lovely and changing scenes—of day lilies, hardy pinks, exquisite Japan irises, and a procession of stately lilies, commencing with June and ending only with frost: of phloxes, hollyhocks—single and double—and clematises with their wreaths and garlands of purples, pinks and whites; of foxgloves, larkspurs and evening primroses; and our garden, daily, until frost, will have new attraction.

Arranged with some judgment at first, this garden might be left to take care of itself; time would but add to its attractions, and the happy owner might go away for years and find it beautiful on his return.

We have gathered together the best collection of hardy plants and bulbs in America, and will send catalogue and information about hardy gardens on request.

**"A Plea for Hardy Plants," by J. Wilkinson Elliott, gives much information about Hardy Gardens, with plans for their arrangement. We have made arrangements with the publishers of this book to furnish it to our customers at a very low price. Particulars will be sent on request.**

**ELLIOTT NURSERY CO.**

**PITTSBURG, PA.**

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No. 1
FEBRUARY, 1905

*An Illustrated Magazine on Practical Gardening*

TWENTY REGULAR DEPARTMENTS: THE GARDENER'S REMINDER; COLDFRAMES AND HOTBEDS; THE BACK YARD; VEGETABLES; BULBS; ROSES; ANNUAL FLOWERS; THE SMALL GREENHOUSE; THE WATER GARDEN; THE WINDOW GARDEN; GARDEN INSECTS; THE HARDY BORDER; RECENT DISCOVERIES; ETC.

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$1.00 A YEAR

# THE GARDEN MAGAZINE

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COUNTRY LIFE IN AMERICA

DOUBLEDAY PAGE & CO
133-135 & 137 EAST 16TH ST. NEW YORK

THE WORLD'S WORK

DESIGNED AND ERECTED FOR JUDGE WILLIAM H. MOORE, PRIDES CROSSING, MASS. GLASS POTTING HOUSE AT EXTREME LEFT

# LORD & BURNHAM CO.

*New York Office:* 1133 BROADWAY (Corner 26th Street)
*General Office and Works:* IRVINGTON-ON-HUDSON, N. Y.

*CATALOGUE SENT ON REQUEST*

¶ We design and erect all styles of Greenhouses from the Large Ranges, Palm Houses, Graperies, etc., to the small conservatories.

¶ If you will write us what you have in mind we will gladly prepare designs and submit estimates, and advise you in the matter.

¶ We make a specialty of small houses for amateurs.

# The TARRYTOWN FERN *NEPHROLEPIS PIERSONI ELEGANTISSIMA*

THE BEST RECORD OF ANY NEW INTRODUCTION

THE MUCH COVETED $50 PRIZE from the HORTICULTURAL SOCIETY, of New York FOR THE BEST NEW PLANT OF THE YEAR

## GOLD MEDAL
### WORLD'S FAIR

**Shaw Gold Medal**
Louisiana Purchase Exposition.

**Gold Medal**
Pennsylvania Horticultural Society.

**Gold Medal**
Rhode Island Horticultural Society.

**Gold Medal**
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**Silver Medal**
Society of American Florists—Highest Award.

**Silver Medal**
Massachusetts Horticultural Society.

**Silver Medal**
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**Silver Medal**
American Institute, New York—Highest Award.

**Silver Medal**
Newport Horticultural Society—Highest Award.

**Silver Medal**
Tarrytown Horticultural Society—Highest Award.

**And Numerous Diplomas and Certificates of Merit.**

## Introduction 1905

There is nothing in the fern line that is as handsome as this beautiful fern when well grown. It is a wonderful improvement over Nephrolepis Piersoni in every respect both in regard to beauty and habit of growth.

It is a sport from the Pierson Fern (Nephrolepis Piersoni), but it is very much more beautiful and of greater value. It is as different from the Pierson Fern as that is from the Boston. The small side pinnæ are again subdivided, producing an exquisite and beautiful effect, changing the entire character of the fronds, which measure less than half the length and about twice the breadth of the fronds of the Pierson Fern. The fronds also assume an entirely different form, the side pinnæ standing at right angles to the mid-rib of the frond, on edge rather than flat, as is usual, making both sides of the frond equally beautiful—entirely different from any other fern.

The Plant is very dwarf, only about half the height of the Pierson Fern, and of very much more compact habit. Taking it altogether, it makes one of the most exquisite plants and one of the most valuable for table and house decoration that has ever been introduced. The cut fronds, on account of their beauty, will be in great demand for table decoration. Well-grown plants make most magnificent specimens.

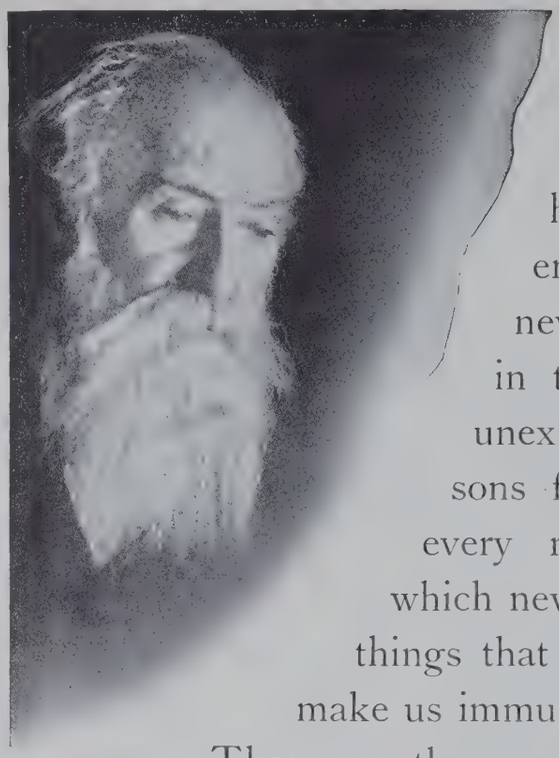
NOW READY FOR DELIVERY

PRICE—Small plants 2¼-inch pots, $1.00 each. Fine large specimen plants—5-inch pots, $2.00 each; 6-inch pots, $3.00 each; 8-inch pots, $5.00 each; 10-inch pots, $7.50 each.

F. R. PIERSON CO., TARRYTOWN-ON-HUDSON NEW YORK

IT TAKES $20,000 worth of postage stamps to mail *The Maule Seed Catalogue* for 1905. It contains 152 large pages, full from cover to cover of illustrations and descriptions of the best and newest things known in horticulture. As the original introducer of Prizetaker Onion, Nott's Excelsior Pea, Davis' Wax Bean, etc., I know what I am saying when I make the statement that never before have I offered so many novelties in flower and vegetable seeds of real merit. No gardener can afford to be without this book, which will be sent free to all sending me their address on a postal card.

*Wm. Henry Maule, Philadelphia, Pa.*



"TO add to the resources of one's life—think how much that means! To add to those things that make us more at home in the world; that help guard us against ennui and stagnation; that invest the country with new interest and enticement; that make every walk in the fields or woods an excursion into a land of unexhausted treasures; that make the returning seasons fill us with expectation and delight; that make every rod of ground like the page of a book, in which new and strange things may be read; in short, those things that help keep us fresh and sane and young, and make us immune to the strife and fever of the world."

These are the words of the "Nature Poet," JOHN BURROUGHS, in his introduction to

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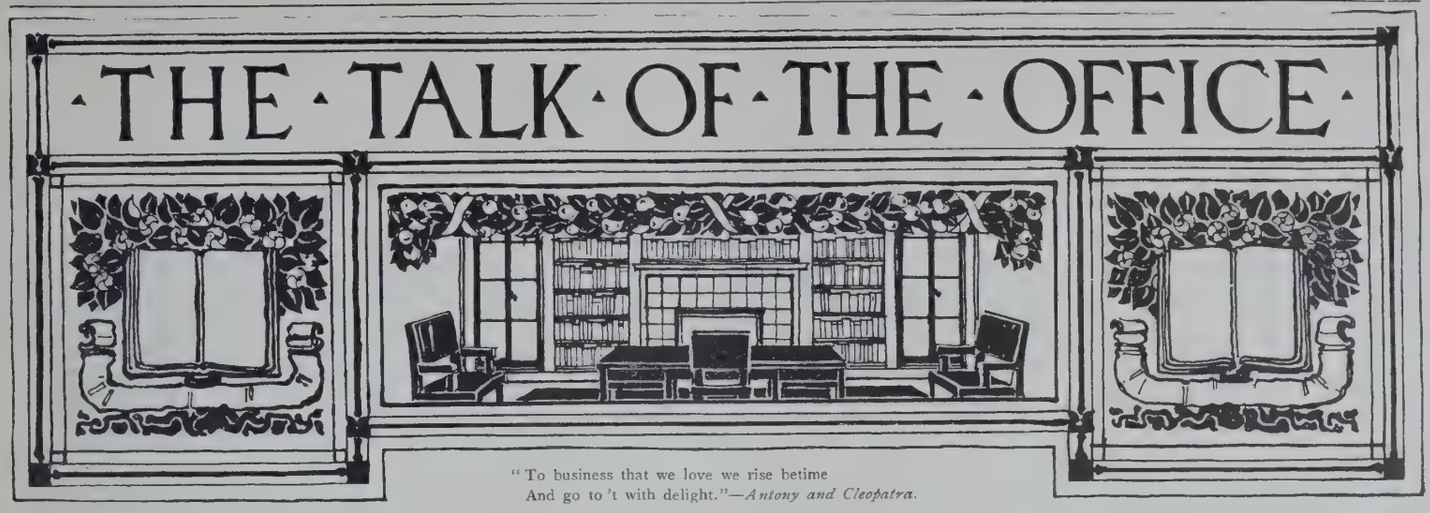
# THE TALK OF THE OFFICE

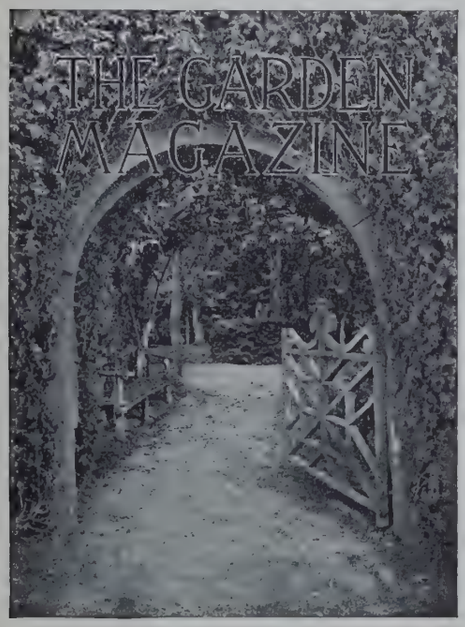


"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra.*

### PLANS AND PURPOSES

WHEN any one feels the call to start a new magazine, there rises up a well-defined class of people who protest that there are magazines enough, and it is possible that some will say this apropos of THE GARDEN MAGAZINE.

For our part, we have been surprised at the great patience of the public, which has so long waited for a beautiful periodical devoted to that most fascinating and refreshing of all subjects, the garden. There are dignified and attractive monthlies devoted to every other subject under the sun, from railroads to chickens, but no such magazine as we have in mind to make exists. Our chief difficulty will be, we fear, not to find a market, but to make a magazine good enough to meet the demands of that market: it will take a little while to get in full swing of the great field that we hope and mean to occupy. We know the deficiencies of this first issue, and we know where our real shortcomings lie, but we shall be grateful for practical suggestions for improvement in text or illustrations, and especially we invite the stories of personal gardening experiences when they are practical and inspiring.




The March Number

### A NEEDED MAGAZINE

THE GARDEN MAGAZINE is the logical working out of the growing interest in the garden not merely as a means of livelihood (though we expect to see more and more people turning to it as a life work), but as a delight and pursuit for the busy people in the world who find a new fascination in the things of the soil.

In England, gardening papers and magazines have circulations running into the hundred thousands; the best authorities are represented in their columns, and in technical matters they are far more advanced than would meet the needs of any large public in this country; but they are, with few exceptions, not beautiful. There is really no excuse for a periodical which touches the things of nature that has no beauty of form and illustration; and here, we have felt, there is a great opportunity.

### QUALITY, NOT BULK

Fine printing and paper and fine cuts cost about twice as much as ordinary printing, cheap paper and poor illustrations, and yet if one does not attempt to give too much in quantity, the quality may be sustained and the magazine sold at a low price. THE GARDEN MAGAZINE will contain the very best we can get, and we expect to cover the whole subjects with crispness and interest; we intend that all articles shall be short and to the point.

### TIME OF PUBLICATION

As the contents of the magazine must necessarily be timely, and as each number will dwell a good deal on the things to be done month by month and season by season, we propose to have every issue in the hands of our subscribers about two weeks before the beginning of each month. Fully half the pleasure of gardening is in the planning of one's work and the joy of anticipation. Seeds and plants are to be purchased and work cut out before the month opens, and we feel that the early arrival of the magazine should stimulate one's interest in advance.

### THE MARCH NUMBER OF THE GARDEN MAGAZINE

will be the chance to bring into this magazine the real spirit of spring. It is too early to speak as yet of the contents of that issue. It will be changed and changed again: the least attractive articles or subjects will be displaced by more attractive ones—it is wiser to waste a less attractive article when a better one appears than to print the second-best. If you find any subject neglected in this initial number, let us know what it is.

### THE FEBRUARY ISSUE OF COUNTRY LIFE IN AMERICA

Our older magazine publishes in February an article called "The Love-Making of the Grouse," which typifies the kind of thing the magazine stands for. The photographs, by Josef Brunner, depict this shy bird at his mating season, when the cock sets out

The February Number

to win his lady-love. That such a series of life photographs could be made is almost incredible. These photographs form but one of a series which have been appearing month after month on the squirrel, the tarpon, the beaver, etc., and represent months of painstaking work. The time and patient effort wasted even by the most expert photographers to gain the results given to the public can hardly be realized.

# How a Commercial Tree Reached Maturity

THE STORY OF A GREAT SUCCESS BUILT
ON A SMALL ARTICLE, WELL MADE

THE growth of a great business is like the development of a tree, and its final success depends very much upon the same sort of treatment. To begin with, the seed, or the article upon which the business is based, must be good; then the soil or class of customers must be suitable and in the proper condition to receive it; and, finally, the cultivation of the ground and care of the tree itself must be thorough and careful, for like a

L. E. WATERMAN
Inventor of Waterman's Ideal Pen

tree, a business that does not develop and grow continually loses its vitality, begins to droop, and eventually dies.

Twenty-one years ago this month there was planted, in a well-prepared and fertile soil, a seed that after careful tending and watchful care has developed into a flourishing healthy business, like a sturdy tree that has reached its maturity and is growing still.

At the back of a little cigar store on Fulton Street, New York, Mr. L. E. Waterman, on February 12, 1884, established the Waterman's Ideal Fountain Pen business. A single desk was the office, factory, store, and stock-room, and Mr. Waterman was the entire force, manufacturing, sales, and accounting. That was in 1884, and the output that year was 200 pens, made and sold by the inventor. In February, 1905, a six-story building is required by the sales, business, and accounting offices and store rooms, while a separate factory is in operation for the rubber work and another for the gold pens; the employees run into the hundreds, and the product exceeds three-quarters of a million per year. This, in a nutshell, is the story of the growth of this great enterprise. The following figures illustrate the increase even more graphically: In 1884 the output was 200; 1885, 500; 1886, 2,000; 1887, 5,000; 1888, 9,000; 1889, 12,000; 1890, 18,000; 1891, 22,000; 1892, 23,000; 1893, 38,000; 1894, 42,000—2,100 per cent. increase in ten years; 1895, 63,000; 1896, 87,000; 1897, 98,000; 1898, 139,000; 1899, 185,000; 1900, 227,000; 1901, 326,000; 1902, 400,000; 1903, 500,000; 1904, 750,000.

The whole structure of this great tree is based on the quality of the seed—the pen itself. When Mr. Waterman made the first Waterman's Ideal, there were fountain pens of the sort on the market, but they were a nuisance, not a necessity. The Waterman's Ideal of 1884 was the best of its kind. Many of those made that year are in use to-day, and it could be depended upon to do its work. As the years sped by, improvements were invented, and so this perfect writing instrument was kept first by sheer quality.

The ground was ready for the establishing and growth of this tree. People were tired of fixing quills, of dipping pens, and of pointing pencils. Busy people were looking for an instrument that would transfer their thoughts to paper with the least effort and the greatest certainty: Waterman's Ideal Fountain Pen fulfilled all these conditions perfectly. The ground, contrary to the usual procedure, increased in proportion. From 200 to more than 750,000 pens per year in twenty-one years of rapid growth.

No growth, however, can be symmetrical and solid if care is not taken to cultivate the soil and prevent disease. The L. E. Waterman Company is a tree whose increase has been fostered by the rains of kind words spoken by satisfied buyers; the ground in which it grows has been fertilized by the method of fair dealing and help to those who handle its products. The ills that beset all natural growths have been warded off by the sheer strength of the structure itself. No vulnerable points have ever been found in the L. E. Waterman Company. Their product has always been above reproach.

Every feature of the growing thing has some particular use; every one of the few parts of the Waterman's Ideal Fountain Pen has its particular purpose also; nothing is superfluous, nothing essential is left out, there is nothing to get out of order. All those things (seeming conveniences, perhaps) that might complicate the simple workings of the pen are omitted. Nothing can hurt the Waterman's Ideal but gross abuse.

It was recognized very early that no two hands were alike and that different people required different nibs. These writing instruments, therefore, were supplied with a great variety of points, and no buyer is urged to buy what does not suit him. It is the policy of the company to exchange till the customer is suited. In this way, any one, from the person who needs the heavy nib necessary to make carbon copies of his writing, to the artist who draws hair lines, is fitted with a pen of his liking, and there is no dissatisfied talk to mar the reputation of the pen.

It is its adaptability to every need that accounts for the universal use of the Waterman's Ideal Fountain Pen. The boy who saved up his money, bought a pen, and used it all the week writing express receipts, and Saturday afternoon to keep baseball scores, was as much entitled to consideration in the Company's eyes as the bank president who used his to sign checks.

In one respect this thriving commercial growth and the fruits of it are quite unlike the natural tree; for there are few, if any, fruits that meet the needs and tastes of every one, while the product of the L. E.

Waterman Company is getting to be a necessity to almost everybody, and all those who write would find it a convenience that they would never part with had they once experienced its joys. Here are some of the unusual uses to which Waterman's Ideals have been put in addition to the keeping of baseball scores already mentioned: Marking uniforms and linen during a recent campaign; making memoranda on the field of battle in war correspondents' note-books; making, in the hands of a skilful draughtsman, drawings that cannot be told from wood engravings; the reporting of rapidly given testimony in court. But it is in the lightening of the burden of every writer, whether of personal correspondence, literary matter, school compositions, or accounts, that this useful tool has gained its popularity. The range of this fruit is bounded by no zone, nor is its growth hampered by climatic conditions, for it is found in all countries and climes and is used by all kinds and conditions of people.

The Waterman Ideal is the most cosmopolitan of writing instruments, for it records all tongues and is alike fluent for the poet, the composer of music, or the writer of chance postal-cards at the mail-box. This extensive use of the fruit of the Waterman tree is not a matter of chance; it is due to its entire reliability under all conditions and its adaptability to every peculiarity of every user.

The making of this necessary recorder seems a simple matter until one has followed the process. The gold nib alone requires between sixty and seventy operations; and the hard rubber barrel about forty more. When one considers the number of processes through which each completed pen passed, and the costly quality of the material used, the wonder is that Waterman's Ideal can be sold so cheaply. There is no doubt that a fountain pen can be produced with much less work, but not Waterman's Ideal Fountain Pen. For this masterpiece specially trained workmen are employed in making, and experts do the work of assembling, so that no imperfect pen leaves the maker's hands.

Though great care is expended in the making of these pens, equal effort is spent in the marketing of them: there is hardly a town or village in this country that cannot boast its display. The stock of pens in the village stationery store, jewelry shop, or pharmacy is always kept up to requirements of the buyers, and the same system of exchange, until the customer is suited, is in force as in the main office on Broadway, New York. Practically, the buyer in places remote from the great centers has the same facilities as the dweller in the chief metropolis. So thoroughly does the L. E. Waterman Company realize that satisfied patrons are its best asset, that a bound book is issued by them for the education of people who sell their pens throughout the country. It is practically a correspondence course on pen selling and pen using, to the direct advantage of the purchaser, who gets what he needs and what suits him.

It is thoroughly understood that if a pen does not satisfy the buyer it is not because fountain pens are not suited to that writer, but because that particular style of point or holder does not fit the peculiarities of that hand. This accounts for the great care expended in training the pen-clerks who sell the Waterman product. There are Waterman Ideals to fit any hand.

Twenty-one years ago the small shoot of the L. E. Waterman Company appeared in an obscure place full of vigor and thriving in spite of many adverse conditions. To-day the great tree has reached its majority, its fruits are to be found in every quarter of the globe, its roots extend to many lands, and its growth in its twenty-first year is quite as rapid and as symmetrical as in the early years of its vigorous youth.

The main stem of this great tree is the six-story building, corner of Cortlandt Street and Broadway, but three short blocks from the place where the seed was planted. A factory at Seymour, Conn., where the rubber barrels are made, and a gold pen factory in lower New York City, are offshoots of the main plant.

The inventor of this almost indispensable writing instrument planted the seed so many years ago with a confidence in the future of the great tree that should grow from it that nothing could shake. The tree grew, and Waterman's Ideal came into more and more common use, but not until the eve of its twenty-first birthday was its universal use and unrivalled quality officially recognized. Up to 1904, fountain pens were not considered worthy to put be in the Grand Prize class at international expositions, but at the St. Louis World's Fair Waterman's Ideals received the only Grand Prize for a fountain pen, and one of the four awarded to all the varied industries in the great Palace of Manufactures. Not until this pen is in the hand of every one who writes (and this will come about as soon as people realize what a convenience it is) will the L. E. Waterman Company tree cease from growing.

# Superb English Delphiniums

Add (Perennial Larkspurs)
to future advertisements

FOR twenty-five years we have been urging the many advantages of gardening with Hardy Plants, and now that these advantages are pretty generally recognized we wish to call attention to some of the better varieties which are not well known. Everybody knows about the good qualities of Paeonies, Phloxes, and Hollyhocks, but there are scores of plants equally as good which are comparatively unknown. Among the best of these are the superb **English Delphiniums.** Tall, stately and picturesque in habit, they produce immense spikes of flowers of every imaginable shade of blue for a very long season during the summer. The colors are often combined with various shades of bronze, sometimes with white eyes, and the range of colors includes plums, purples, white, and primrose yellow. The flower spikes are sometimes two feet in length, and the variety and combination coloring is lovely beyond description. The plants range from three to seven feet in height and will thrive in any soil except in a very light and sandy one, and even in this if it is liberally enriched with well-rotted cow manure. We have the best and the only good collection of English Delphiniums in America. They are grown from the finest collections in England.

## Special Offer of Improved English Delphiniums

| | | |
|---|---|---|
| Fine mixed English, | $1.50 per dozen, | $10.00 per 100 |
| English, in separate colors, | 2.00 " | 13.00 " |
| Selected varieties, selected from thousands of seedlings grown from a famous named collection, | 3.00 " | 20.00 " |
| Extra selected varieties, | $ .50 each, | 5.00 " |
| White varieties, | 1.00 " | |

We have the largest, finest and most comprehensive stock of Hardy Plants in America, including three hundred varieties of the choicest Paeonies, one hundred varieties of Japanese and European Tree Paeonies, including extra large specimens, and also the largest collection of Japanese Iris in the world and an unsurpassed collection of named Phloxes. Our illustrated catalogue describing these and hundreds of other Hardy Plants, Trees, and Shrubs will be sent on request.

"**A Plea for Hardy Plants,**" by J. Wilkinson Elliott, contains much informa ion about Hardy Gardens, with plans for their arrangement. We have made arrangements with the publishers of this book to furnish it to customers at a very low price. Particulars on request.

## ELLIOTT NURSERY CO.
## PITTSBURG, PA.

GARDEN MAGAZINE

# The Garden Magazine

VOL. I.—NO. 1 FEBRUARY, 1905 ONE DOLLAR A YEAR / TEN CENTS A COPY

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*Wilhelm Miller, Editor* *Cover design by Henry Troth* *Doubleday, Page & Company, 133–137 East 16th St., New York*

[For the purpose of reckoning dates, New York city is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

## The Five Most Important Things

PLAN your garden; make a diagram.

Send for catalogues now. Order seeds, plants, and tools now, if you want better goods for the same money.

Study fertilizers, and decide what you want, where to get it, and how much to pay.

Resolve to kill the bugs this year. Study spraying, and get your spraying outfit now. Don't put this off till March. See the new department, "Killing the Bugs."

Build a coldframe and a hotbed.

### OUTDOOR WORK IN THE NORTH

On pleasant days, prune apple-trees and grape vines. See article by Professor Craig.

Mulch strawberries and the hardy border if they were not covered in the autumn.

Manure the lawn, or, better still, scatter bone-meal on the snow; it harbors no weed seeds.

Haul out manure to the vegetable garden as fast as it is made, or else keep it under cover and fork it over every week.

Plan any grading or draining you have in mind. Time will be too valuable for this next month.

Remove roots and stones. Possibly the stones may help to make a good rockery.

Unless you have previously spread manure on the ground beneath the vines, shrubs and evergreens, do it now.

### HOW TO RAISE EARLY VEGETABLES

Make or buy a hotbed before February 1st, and you can have home-grown radishes in February. A crop can be raised in twenty-one days if you know how!

If you want fresh vegetables in May, sow any time in February in hotbeds the following seeds, in order to have strong young plants to set outdoors April 15th or whenever the danger of severe frost is past:

Early cauliflower, if you want the most delicious member of the cabbage tribe out of season.

Kohlrabi, one of the good things the Germans appreciate and we don't know. Looks something like an above-ground turnip, but tastes better and has a flavor of its own.

Lettuce, next to radishes, the easiest and quickest crop. Will make heads in coldframes by May 1st.

Leeks, if you want to have savory soups.

If you care for young onions, crisp and tender, now's the time!

Tomatoes may gain a little on the season if transplanted into pots and kept pot-grown until settled weather (end of May), then turned out of pots into the open garden.

If you like a salad plant with a "tang" to it, try endive, and tie up the plants so they blanch. When you once acquire the taste, nothing else will do.

### FLOWERS WITHOUT A HOTBED

Sow now in flats in the home window the following flower seeds:

To make the autumn red, scarlet sage or salvia.

To fill gaps in the hardy border, single dahlias.

For hanging-baskets, the cigar plant (*Cuphea Llavæ*).

If you want it at all, now is the time to start ageratum.

For May bloom indoors, ten weeks' stock (*Matthiola incana*, var. *amœna*).

To cover permanent bulb-beds after the spring flowers are gone, try verbenas.

For edging the garden walks, tufted pansies. If sown now, they will bloom all summer.

For a trailing-vine for a veranda-box, the variegated periwinkle (*Vinca minor*, var. *alba* or *aurea*).

If you want an annual vine on your porch before the permanent ones are large enough to cover it, try *Cobœa scandens*.

For a part of the grounds where you want a big mass of color in September try cosmos, and tie it to chicken wire.

For large specimen plants in twelve-inch pots for hall and porch decoration, sow seeds of cup-and-saucer Canterbury bells.

For a summer bed on the North side of a building, where there is plenty of air and diffused light without strong winds or direct sunlight, try tuberous begonias.

If you want a white-leaved foliage plant for a flower bed, sow seeds now of one of the dusty millers.

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1. The Japanese iris, largest of the family. Flowers nine to twelve inches across. A moisture-loving species. The flowers are flat—i. e., they have no upright petals

# The Best Irises—By Neltje Blanchan

Photographs by F. A. Waugh

2. The Siberian iris, distinguished by its early season and tall, slender stalks. It blooms in May, or about two weeks before the German iris

LITTLE wonder that a plant so boldly decorative in outline and bearing a flower of exquisite coloring so marvelously formed should make its strongest appeal to the artistic Japanese. From these foremost gardeners of the world has come a strain of irises that neither orchids nor lilies can rival in beauty of form, texture, coloring, markings, and general effectiveness. In the Mikado's garden, under ideal cultural conditions—that is to say, in rich, warm, sunny, alluvial land—the blossoms will measure from nine to twelve inches across their flat petals. Around the shores of those miniature lakes and streams in which the Japanese gardener, however humble, delights, the irises are no less lovely because a small garden demands that they be of lesser size. Every one appreciates the iris in Japan. Therefore, on the most costly *cloisonné* and ceramic, as well as on "many a vase and jar, on many a screen and fan," whose decorator may receive only an eighth of a cent for his sketchy painting, this flower, imperial and democratic, is the most familiar. For the artist, at least, its value is double that of the national chrysanthemum.

Yet the *Iris Kæmpferi* may be as easily grown as the potato. Moreover, it is perfectly hardy. High, dry lands do not suit its moisture-loving roots, but good garden soil, enriched with thoroughly decayed manure, deeply dug in and well watered during May and June—the blossom months in the northeastern United States—will produce flowers of wonderful size. Do not select a shady place for your irises. They thrive under full exposure to the sun, but moisture they must have to bloom their best, and sometimes their roots will penetrate two feet deep to get it. Naturalized in the water garden, where the tall, narrow, blade-like leaves rise in phalanxes around the shore and the stately beauty of the flowers is reflected in the mirror below, they are ideally situated; but let no one forego the delight of growing Japanese irises merely because he has not a pond or stream on his place. Some exceedingly fine specimens have been produced in a city back yard.

Now that the Occidental as well as the Oriental hybridizers produce an enormous number of seedlings every year, new varieties are constantly offered in the catalogues —so many that, were their charms described in Japanese, they could scarcely be more bewildering to the American amateur. The original parents of Kæmpfer's lovely tribe were *I. lævigata* with drooping "petals," modeled on the natural rule-of-three plan, and *I. setosa* with broader, more horizontal "petals," the three outer and the three inner



These pictures are certainly not good enough; they don't show what the flowers are really like. But pictures up to the country life standard in detail, beauty & appropriate

ones being of equal size in many of its new varieties, giving a strange regular symmetry to the flower. The pernicious trick of doubling and multiplying "petals"—a common vice of the up-to-date sport—quite destroys the iris's natural grace of outline, which is its chief characteristic and charm. Blotches and patches of color like a circus pony's sadly detract from its stately dignity. Surely the range of pure colors, from silvery white, through pale blue, lilac, plum, and purples, with exquisite veinings and star-like centers of contrasting shades or of gold, should satisfy the most exacting eye.

German irises differ from the Japanese in having shorter, broader, blade-like leaves and flowers not yet induced to lie flat, having three strongly recurved and handsomely marked "petals" or falls and three upright standards. Both kinds have creeping stems, and it is by division of these fleshy, thong-like roots that the plants are most successfully propagated. Set out early in the autumn, they should bloom the following May. It takes at least three years to produce flowers from seed—an interesting experiment for the amateur hybridizer, but one rarely tried except by commercial men. While not so impressively magnificent as the Japanese strain, the German irises are nevertheless very beautiful; their coloring including white, yellow, lilac, and purple—either one of which every iris would be in a state of nature—and, in addition, some queer browns and rich velvety maroons combined with yellows which are unusual and effective.

We hear of the common blue flag. In reality it is not a blue, but a purple. Yet there is a little dwarf iris, a variety of the Crimean *Iris pumila* and *I. Persica*, which are true blue—that heavenly color all too rare in our gardens.

No plants are of easier culture than the German irises. They like a dry soil, rich food, a sunny, open situation, and plenty of room to spread, but they do not insist upon any of these conditions. Neglect them, starve them, crowd them among the shrubbery, stifle them in the herbaceous border, bury them in the rock garden, still they will bloom—sulkily, perhaps, but far more than they really ought, considering. Give them a rich dinner once a year, and let them alone thereafter, they will repay you most lavishly. Just as the gorgeous pageant of Dutch bulbs—jonquils, narcissi, and tulips—passes, the German irises begin their royal show, several weeks before their Japanese sisters unfurl their banners. Special emphasis should be laid upon letting all irises alone. They resent being fussed over. If it is necessary to divide a clump, cut it in half with a sharp spade and fill in the hole with old, well-rotted manure. Don't disturb the entire clump in order to take away part of it, and don't bury the rhizome when you plant the root.

On the streets of London and Paris and in the market-places of western Europe are sold bushels of the very beautiful Spanish irises, whose charms are not yet appreciated here as they deserve to be. In loose, friable garden soil, in a sheltered corner, they yield a lovely crop of flowers to cut for the house. More dainty than the larger German and Japanese irises, they are airily poised like butterflies on the tip of tall, slender, swaying stems amid narrow, grass-like blades. Secure a ribbon of soft lead from your plumber, place it in the bottom of a bowl, pinch it about the iris stems, and so arrange a few that they appear to be growing out of the water. Pebbles conceal the lead and help the illusion. From the Japanese we are slowly learning not to bunch a miscellaneous lot of cut flowers in wads for our vases, but to give each flower its natural, characteristic attitude and isolation.

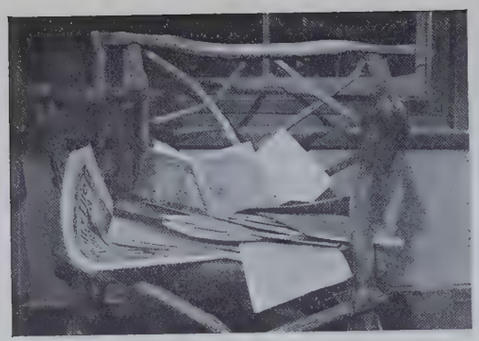
English irises, another group of these endlessly beautiful plants, grow from bulbs like the Spanish strain, but in form and poise the flowers more closely resemble the Japanese. Coming toward the end of the iris season, which they prolong until the hot weather, they are especially desirable for those who tarry too long in the cities to enjoy the spring flowers about their summer cottages. Bulbous irises suffer from moisture and bleak exposure. A dry soil, even clear sand at the base of the bulbs, preserves them from decay, and, while they must be well nourished if they are not to fail utterly, let no manure come in direct contact with these. The rhizomatous irises are the gross feeders.

Certain irises there are that should be in every garden. No one is too poor or too inexperienced to have at least one fine clump of Japanese or German irises; for instance, the early grayish-white Florentine "orris" (whose dried root furnishes the sachet of commerce), with its large grayish-white flowers, often six inches deep, the falls veined with yellow and green at the base with an orange-yellow beard; or *I. variegata*, with large, slightly scented flowers, their standards bright yellow, their falls claret-red heavily veined. The yellow flag of England, *I. pseudacorus*, is delightfully decorative, and cheap enough to naturalize in quantities with our own native species where one is so fortunate as to own a stream. In similar situations, or even in ditches, the small but showy Siberian flag in blue, white and purple varieties is a charmer. And now that irises are being so successfully forced in the greenhouses, there is not a month in the year when we may not have them in our homes.

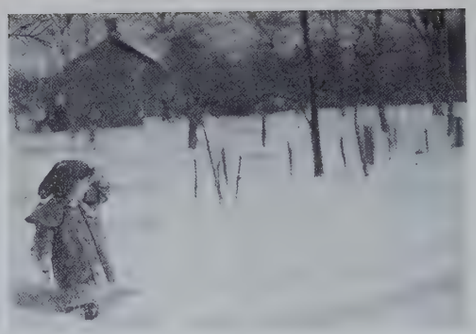
3. German iris (Iris Germanica and allied species). The most popular iris and the best for general conditions

4. A German iris. Of the six showy parts, the three outer, which are reflexed, correspond to the calyx; the three inner or incurved ones to the petals

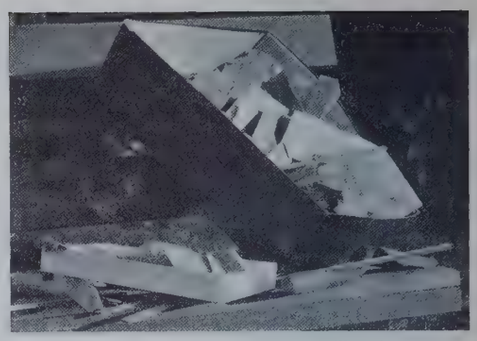
Ness will cost a lot more money. Dwarm yourself!



5. A plan made in winter is more helpful than many books at planting time



6. A good time to plan the garden—when the snow is on the ground



7. A delightful confusion, but you will raise more and better vegetables if you make a plan

# How to Plan the Vegetable Garden—By Edith Loring Fullerton

THE BEST WAY TO RUN THE ROWS—SCHEMES FOR SAVING SPACE, AVOIDING HAND-LABOR, AND GROWING TWO CROPS ON THE SAME GROUND

Photographs by H. B. Fullerton; diagrams from sketches by the author

THE way to have more and better vegetables for less work is to plan the garden in February instead of waiting until May. Every one who fails to draw a diagram of his garden is likely to be swamped by the spring rush. Without a plan you are sure to plant too much of one thing and not enough of another. The only possible objection to planning the garden in winter is that it may "seem like work." The obvious reply is, "Don't make work of it. Enjoy it." If you have never tasted the joys of planning, begin now.

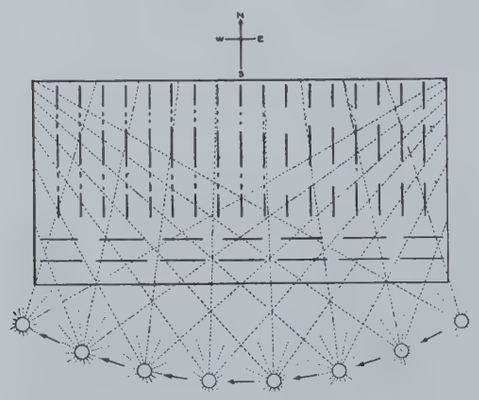
### HOW TO RUN THE ROWS

Let us consider first a medium-sized garden with a southern exposure and protection from the north winds. This, of course, will be the earliest garden, for it gets all the sunlight there is. (See Fig. 8.) If the rows run east and west, the rays of the sun strike only the southern side of the row. If, however, they run north and south, the sun's rays strike the eastern side of the row in the morning and the western side in the afternoon. The latter method seems to me to produce a more even and vigorous growth. Again, suppose the rows are planted east and west, the southern sun of summer will continuously draw the rows one way, southward only, thus pulling them out of plumb. This is another point in favor of north-and-south planting, for rows thus planted are drawn eastward by the morning sun, and this lean is corrected by the afternoon sun.

If the garden faces north (and by this I mean is unprotected from the north winds), would it not be possible to protect it on the northern and western sides by a hedge of privet, a vine-covered trellis or a grape arbor? The latter in this case would give the greatest amount of protection if made in the old-fashioned lattice style. Even a high board fence can be made a thing of beauty by covering it with vines, particularly climbing roses.

If your garden faces southeast and is entirely cut off from the western sun (Fig. 9), it will be better to run the rows northwest and southeast in order to get the greatest duration of sunlight, for in this situation every available ray is most valuable.

No matter how your garden may face, no matter what angles, curves or dimensions it may possess, you will see at once and very clearly the best thing to be done when you have it before you on paper with the area reached by the sun's rays laid out upon it.



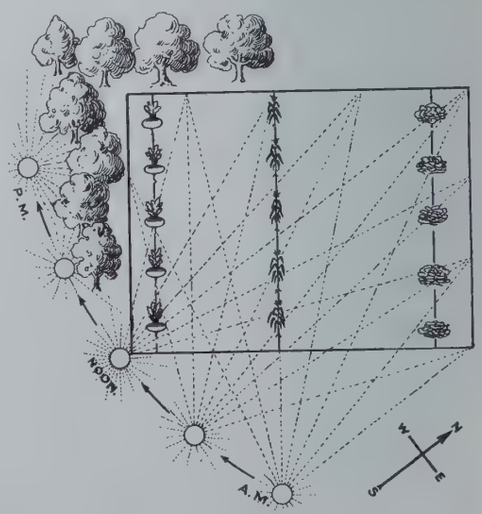

8. To prove that the ideal exposure for a garden is toward the south; also that the sun's rays strike every portion of rows that run north and south, while only the south side of rows running east and west get the benefit of the sun

### A "COMBINATION" GARDEN

Suppose you live in the suburbs upon a lot not more than 50 x 100 feet or even less. You can surely spare a little ground for a vegetable garden. I know of one such dear little home plot and this is how it was laid out. (Fig. 10.) It is a corner lot. On the west and south run the streets of a suburban village, with broad curbs and stone sidewalks. It is a fenceless town; hence it was easy to coax a lawn right down to the walk. A few evergreens were dumped in a procession at the southwest corner, an unhappy dogwood (naturally a shade-loving tree) was trying to live on the sunny west side, while fruit-trees were located on the almost sunless eastern side of the house. It was undoubtedly a creation of some landscape gardener who had to a certainty missed his calling, but he accidentally did one thing very wisely, and we forgave him. As he had exhausted all available space except the back-fence line, and had a number of small arbor-vitæ plants, he placed them along the north boundary, and they "did the rest," soon forming a beautiful, close and therefore effective wind-break, which was of great service to the garden.

A detailed plan of this garden is shown in Figure 11.

The first back bed at the eastern end was sown to lettuce and radishes, half and half; the second bed, beets; the third, beans; the fourth, tomatoes; the fifth, corn. The front beds were full of flowers which screened the low-growing vegetables, while the taller ones made a fine background for the gay colors. These were the flowers used, all of them showy kinds, suitable for cutting: The first bed at the eastern end, phlox; the second, nicotiana; the third, nasturtiums, climbing over a small fir-tree; the fourth, scabiosa; and the fifth, verbenas. The western boundary of the garden was an althea hedge against a wire fence. The fence was covered with




9. Showing why a garden that faces southeast should have its rows run northwest and southeast

scarlet runners, making a gorgeous bit against the street. At the front of all these beds was a strip of moss, curled parsley—backed by dainty Shirley poppies, making one of the most beautiful combinations imaginable.

There were enough vegetables of the kinds planted (except corn; and in my estimation it takes a large plot indeed to raise enough corn) to satisfy a family of three.

### TWO CROPS ON THE SAME GROUND

If you are wise you will plant late corn after the lettuce and radishes are out, and more lettuce, corn salad, or endive after the beans are out. Then if you care to raise late crops, cabbage, cauliflower or spinach could go in where the early corn grew, and in this manner make the small patch earn its living and pay big dividends.

Here is a plan for successional planting (Fig. 12). We will consider annuals only, the idea being to have the land in use all season. The first sowing of each row may be as follows: Row 1 is to have radishes and lettuce, either one-half or one-third of the row radishes, as you choose; row 2, beets; row 3, green beans and peas; row 4, early corn; row 5, tomatoes; row 6 (not shown), parsnips and carrots. When the early crops are out of row 1, it may be sown to middle-season corn. When the early beets are out of row 2 (or perhaps you have sown one-half this row early and one-half late beets), it may receive egg-plant or cauliflower. Row 3 may have summer lettuce or kale; row 4, lima beans; row 5 may have cabbage planted between the tomatoes, as the latter will be out in time to allow the former a chance to head. Carrots do not come out until late, and parsnips must be frozen to be at their best.

It is well to remember one thing in making this layout—do not let two vegetables of the same botanical family follow each other; for instance, lima beans should not follow green beans or peas, as these are all of one family and draw about the same elements from the soil. All members of the cabbage family are likely to have the same insects and diseases.

### A VEGETABLE GARDEN ARRANGED FOR BEAUTY

There is another suggestion in regard to planting I should like to make, and that is a Japanese or "radial" garden. Take the center of your garden, if it be not too large and of the proper proportions, and run the rows from this central point. This will give a vast number of opportunities for combining color effects, always considering relative heights and methods of growth (Fig. 14). The long rays must be spaced as close together to the central ring as the several vegetables will allow. I should think two feet would be a good average. If the rays are long, a wide divergence at their outer ends will result; short rows could be planted between for a part of the distance.

The center of the circle should be occupied by either a perennial or a plant that lasts late in the fall. Cardoon, that beautiful, silvery, cut-leaved plant, would be very handsome; parsnips, rhubarb, kale would be good.

The center or orb of this Japanese garden plan offers a capital opportunity for the exercise of ingenuity and individuality. One or more plants of broccoli surrounded by a circle of beets would make a striking effect. The tall, gracefully striped and variegated kales might be encircled by parsley or a large hill of corn, tall-growing, or the dainty variety hedged in by cabbage. In this case, the corn could be replaced by a transplanting of Sakurajima radish.

A lima-bean wigwam of poles, supported at the base by lettuce or Pe-tsai (Chinese cabbage), would please many. The combinations are endless, and a high or low center effect could be obtained to suit one's fancy.

Ray 1 could have lettuce and radishes (it runs due south); ray 2, peas; rays 3 and 7, corn; ray 4, beets; ray 5, scorzonera; ray 6, beans; ray 8, onions or leeks. The intermediate rows could be planted every other one to celery, and the others to parsley, carrots, Sakurajima radish, and parsnips. These all last well into the autumn, so that the garden would always look well.

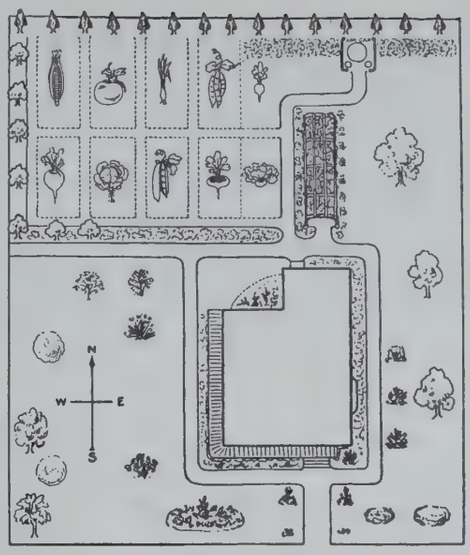
### THE FERTILIZER PROBLEM

There is one thing, however, that must not be forgotten, and that is the fertilization of the soil after each crop has been taken out and before another one has been put in, for you can't expect to grow good cabbage when the corn has taken sufficient food from the earth to enable it to grow a stalk six feet tall and mature two to six ears of corn!

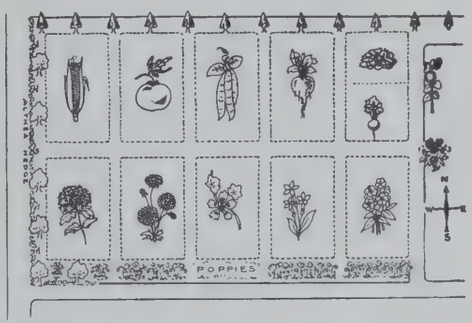
Suppose you have had a vegetable garden in the same spot for many years, and have given but scant fertilizer in that time, say, perhaps, nothing but manure, and you are wondering why your vegetables do not grow as rapidly and mature as perfectly as formerly. Could you spare that garden for one summer and sow it with cow-peas, soy beans or red clover, and plow that crop under in the autumn? These three varieties of plants (and there are many more like them) gather great quantities of nitrogen from the air. They have very long roots, and some possess little knobs, real nitrogen reservoirs, that store away the nitrogen which the leaves draw from the atmosphere. Nitrogen is the most difficult and expensive substance to obtain in fertilizer form, and is greatly sought after; it is used not only to develop quickly such crops as lettuce, but to force for a more prolonged period corn, beans, celery, etc. The readily soluble chemicals, such as nitrate of soda, are of course excellent, as they are quickly utilized by the plants, but because of their easy solubility they are soon washed away by rains. Moreover, they require moisture to render them available. The nitrogen storers are utilized to a greater extent each year. Their power is to absorb nitrogen from the air and to distribute it throughout the soil through the medium of their roots. When the stalks of these crops are plowed in, the nitrogen that they have gathered will be released as the plants decay. It is the cheapest way to buy nitrogen.

### "VACCINATED PEAS"

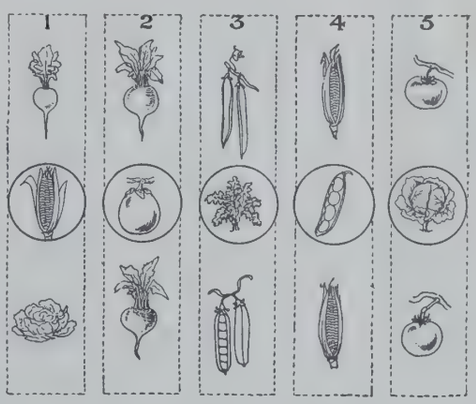
And as wonders never cease, the scientists have now captured the bacteria that attract




10. A suburban corner lot, the best feature of which is the windbreak of arbor-vitae that shelters the garden. This garden will raise enough vegetables for a family of three, except corn and potatoes

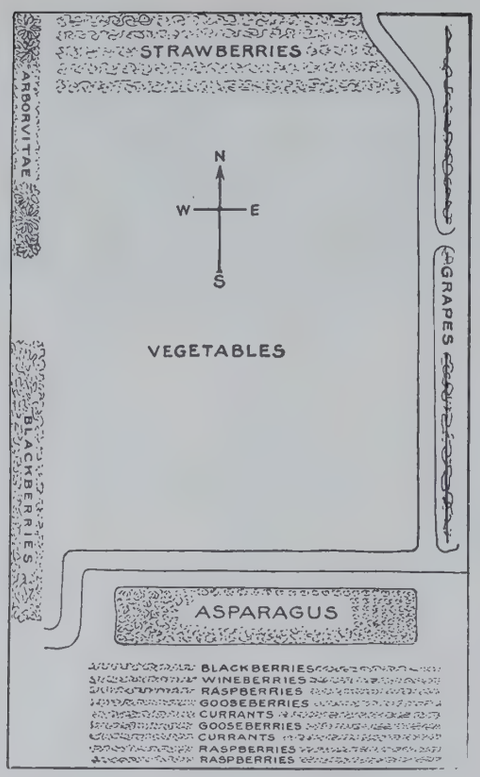



11. Detail of Figure 10, showing vegetables in the northern tier of beds and flowers in the southern tier. The contents of each bed are given elsewhere




12. Two crops on the same ground. The vegetables at the ends of the rows suggest the first planting; those in the middle indicate the succession crops

or urge the plants to draw the nitrogen from the air through the leaf and stalk into the root system. The bacteria trainer cultivates, tames or grows these small creatures, dries them, gives them to us to inoculate or vaccinate the seed or land, so that these plants will draw more nitrogen into the soil than they normally do, because, as in other manufacturing concerns, the supply keeps pace with demand. The Government gives us




13. The author's garden, showing the windbreak at the northwest, the perennial crops at one side as far as possible, and a big space free for plowing

"yeast cakes," as we call them, so there is no outgo but a postage stamp's value, and the returns are great indeed.

I tell you what I think I will do. When our garden is run out and has to be sown with legumes (that's what they call these doctor plants), I will ask my neighbors to let me raise all the peas the entire community needs that year, and I will sow the whole garden to "vaccinated" peas and supply the neighborhood; then the plants can be plowed under in the autumn. Try this, and the following spring sow bone meal and wood ashes, and a little lime if the soil has not had any for three or four years, and the vegetables of that season will say "thank you" so hard you will be able to carry off all the first prizes at the County Fair. (Fig. 15.)

### THE ADVANTAGES OF A COMPOST HEAP

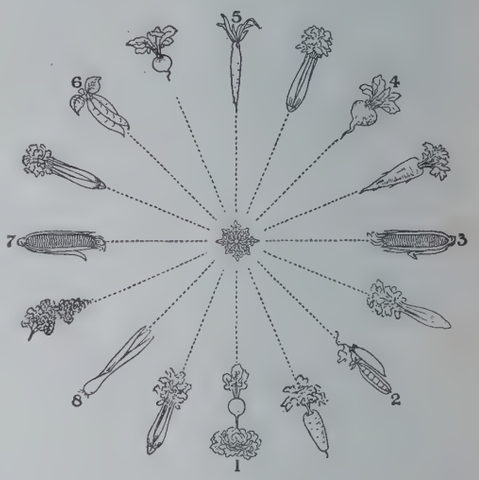
Suppose you have a new place where there never has been a garden. Choose your garden spot carefully, have it plowed up and harrowed, take out all the sod you can—but don't, I beg of you, throw it away, for it is better than a gold mine. Take the sod to some out-of-the-way corner of the place, turn it root-side up and leave it. I can hear you say "I have no out-of-the-way place, and it would look so terrible here all summer." Never mind. Wait a bit. We will fix that in a satisfactory way to a surety. Keep the good work up by throwing the waste leaves of cabbage, lettuce, beets, outside stalks of celery, potato tops, bean, pea, and tomato vines upon the pile. It is easy, with the compost heap near the garden, to throw all this valuable material where it will do the most good, and while keeping the garden looking neat you are adding heavily to your working capital and disposing of rubbish at less expense than in any other way. Throw the autumn leaves on it, also waste from the kitchen, if you have no chickens that will turn it to good account. Turn the heap over in the spring, sow a few morning-glory, nasturtium, or wild cucumber seed in and around the pile, and you will have a thing of beauty and a joy all summer. When the sods are rotted they are the finest kind of fertilizer, for they are the substance of the soil for years and years, and you are returning now the bulk of that which has been taken away as long as those particular sods have been growing.

Why can't you leave them in the garden? Because they will grow if they get the faintest chance, and you will be busier pulling up grass than you care to be that first year, and remember that a good compost heap cannot be overvalued.

### SMALL FRUITS

Let us take up small fruits for a moment, for no garden is complete without them. Blackberries, raspberries, gooseberries and wineberries are all "prickery," as the children call them, and should have a place to themselves, for it is very annoying, as well as mildly painful, to gather or to cultivate vegetables in close proximity to the thorns. I think it wise to give them a place all to themselves, somewhere else in the grounds, or, if territory be limited, plant them as the border to the vegetable garden. If your garden is inclosed by a fence, this opens up excellent possibilities, for a fence is a support and training-ground for your blackberries, raspberries and wineberries. Moreover, they should have a fence to keep them in good shape and within bounds anyhow. So if you do not care to use this inclosing medium for peas, beans and tomatoes, by all means train berry vines upon it.

The low-growing, virtually evergreen strawberries, with their beautifully formed leaves, are in some respects very human, their chil-




14. A suggestion for a Japanese or radial garden, in which the vegetables are to be carefully considered as to color, height and decorative value

dren (the runners) are always moving away and making new homes for themselves; also relying on the good mother plant for guidance and support, which she supplies through the leading-string. This luscious berry should always have a bed by itself. Give to it as much ground as you can afford to spare, to allow the plants to remain there two years; at the end of that time, take the runners you have coaxed to take root in small pots buried in the ground close by, and start a new bed in an entirely different portion of

15. Prize vegetables at a county fair. The products of a friendly neighborhood rivalry

16. The strawberries that grew in the lea of the arbor-vitae hedge were the earliest in the neighborhood

17. The beginning of a compost heap—sods, leaves, old vines, and tops

18. Some of the flowers that screened the vegetables in the garden sketched in Figures 10 and 11

the garden. They are heavy feeders, and the vines do their best and heaviest bearing the second year, although they will yield a fair crop the third.

### THE AUTHOR'S GARDEN

May I sketch our garden for you, laying out the berries? (Fig. 13.) This is only one of many plans, but it seems to be entirely satisfactory for our situation with its southern exposure.

Remember that bush berries are fairly high in growth and should not shade the rest of the garden too much, and also keep in mind the fact that strawberries should be sheltered somewhat, if you wish early fruit. Of course, currants should go among the gooseberries, for one could not get along without their piquancy and brilliant coloring, especially if one take pride in one's jellies.

Sometimes there are gardens shaded from a valuable amount of sun by a row of trees. This can at times be remedied by topping the trees, which will stimulate the trees' growth, keep them fuller and in better form, and at the same time let the sun over them into the garden.

### THE PROBLEM OF INCLOSING A GARDEN

Is it desirable to have your garden inclosed? Is it necessary to keep out chickens, dogs, or children? I hope never your own children, for garden life means a fuller life for them, and being in mother's or father's garden will make the sowing, transplanting, thinning, and weeding so natural that their own garden will come as a matter of course. However, if the garden must be inclosed, let me offer a suggestion. Make a fence of locust posts, on which stretch one-inch-mesh chicken-wire. There may be a top and bottom rail, or not. It will furnish you a first-class pea, bean, and tomato trellis, and should a part be too shady for vegetables, plant wild cucumber or morning-glory, which will sow their own seed year after year and be no trouble to you, but, instead, a joy forever; or the entire fence may be made a thing of beauty by covering it with sweet peas or nasturtiums. When the peas and beans or tomatoes reach the top of the fence, which should be four feet, I think, cut the tops off and force the strength into the fruit. We use a combination of flowers and berries for the garden's division lines instead of a fence, currants, gooseberries, black-caps, and even the low-growing strawberry being utilized, and our friends at least always speak of the neat, well-kept appearance of our little garden plot.

# All the Foxgloves Worth Cultivating—By F. A. Waugh

Professor of Horticulture
Amherst College

THE FIRST OF A SERIES OF "LITTLE MONOGRAPHS" WRITTEN BY SPECIALISTS FOR THE EXPERT GARDENER, WHETHER AMATEUR OR PROFESSIONAL, AND DESIGNED TO BRING OUR KNOWLEDGE OF EACH SUBJECT UP TO DATE

Photographs by the author and HENRY TROTH

[EDITORIAL NOTE—When Professor Bailey completed his monumental Cyclopedia of American Horticulture, he announced that he considered it only a beginning; that his work was largely designed as a record of American horticulture at the beginning of the twentieth century, and that he hoped the Cyclopedia would be considered as a basis for further improvement. THE GARDEN MAGAZINE offers its columns to those who are in a position to contribute something to the advancement of horticultural science, and would be glad to co-operate with those who have investigations under way. Correspondence is invited. We particularly wish to hear from those who are growing complete collections of anything and those who are creating new varieties.

As a beginning, THE GARDEN MAGAZINE proposes two new things, which it is hoped will be considered improvements; first, that the readable or human portion of a monograph should come first, and the technical portion, which is only for reference, last. Second, that every species in cultivation should be provided with a "common" or English name, which should be passed upon by a committee representing all interests, and published in an official and formal way. The ornithologists have provided every bird with a vernacular name, to the great benefit of bird study; each wild flower in Britton and Brown's "Illustrated Flora" has an English name, and the time is now ripe for giving one to every cultivated plant.

Professor Waugh's article is the first of a new type of horticultural writing, in which the point of view is primarily human and horticultural, not the dry-as-dust botanical. The old style "alphabetical monograph" merely *describes* species; it does not *distinguish* them. This new department will do both, and hopes to be interesting also, as well as practical. The new plan combines the convenience of the alphabetical arrangement with the accuracy of the "key" arrangement, which alone can give one a grasp of the whole genus in the shortest possible time.]

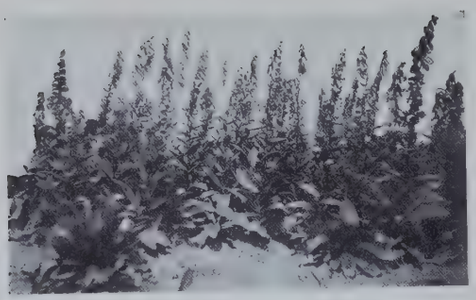
THE common foxglove is, or ought to be, one of the twelve most popular "hardy perennials." About the second week in July, when the foxglove is the queen of the border, there is a certain moment when each stately spire is at its best—the moment when the lowest flowers are quite open and the upper ones successively smaller, until the topmost buds are merely little dots of green.

It is impossible to resist the spirit of the foxglove; its whole expression is one of aspiration. Every one who has the rudiments of an imagination in him thinks at once of church towers and bells. Although the foliage is rather coarse, the whole plant is one of the stateliest of perennials, having the same sort of formal beauty as the larkspur, which enjoys a later reign in the same border.

The foxglove is one of the commonest English wildflowers, and there are some localities in America where it has run wild, but not in great masses as in Europe.

The common foxglove has two distinct uses. The typical, or purple-flowered form, is best for wild gardens or for those hardy borders which are not kept up to the highest mark of neatness. In such places the foxglove "self-sows" and finally makes glorious colonies. But for the most refined borders the appropriate thing is the gloxinia-flowered strain—so called because the flowers are larger and spotted in the throat like the gorgeous gloxinias of the greenhouse. For a certain chaste effect the white-flowered variety of this strain (*Digitalis purpurea*, var. *gloxiniæflora alba*) is unrivalled in the genus. It is difficult to keep these refined foxgloves up to their best, and many people complain that their high-priced varieties revert to the original type. The explanation usually is that the uncommon forms have not had the uncommon treatment they deserve, as will be explained forthwith.

The common foxglove is usually a biennial, which sometimes lasts three or four years, and the seeds are generally sown in spring. Unless well cared for, they may not make large enough plants by autumn to live out-



19. The plant known to the trade as Digitalis grandiflora. It is probably D. ambigua

doors all winter, and they do not flower until the second year. The safest way, and the only way to get the best results from the choice strains, is to sow the seed in August or early September, carry the plants over the winter in coldframes, and set them outdoors the following spring, when they will flower splendidly. This saves a year, in a way, making the foxglove a sort of annual. It is worth all the trouble, if any one wants something better than his neighbors.

Of the eighteen known species, not more than eight are worth cultivating, and of course the common one is best. The second place I should give to the woolly foxglove (*D. lanata*), but the whole collection is worth growing (if you like to grow "collections"), and inasmuch as seeds can be cheaply imported from Germany and France the whole set could be had for a dollar.

All the kinds are easily raised from seed. Sow these in a warm bed or flat, and prick off the young plants when two or three inches high into frames, nursery rows, or permanent borders. When once established, the perennial kinds can, of course, be divided with a spade.

When the seed is sown in spring, the plants should be grown one summer in the nursery before being transplanted to the border.

The common foxglove is a very valuable plant for old-fashioned gardens (which are just now the new fashion), for borders and for park bedding. In most cases they should have a good background, such as trees, shrubbery, or a wall. They should not be planted with anything which overtops them, and great care should be taken not to bring them alongside other flowers with dazzling colors, especially reds. Generally they look best when standing rather by themselves, or in borders where they plainly predominate.

20. Spires of the common old-fashioned foxglove (Digitalis purpurea). It grows two or three feet high and has purplish flowers about two inches long. The throat is spotted

INDEX TO SPECIES OF DIGITALIS

Species in **black-faced** type; synonyms in *Italic*; varieties in Roman.

**ambigua**, 6.
**ferruginea**, 5.
gloxiniæflora, 1.
gloxiniæflora alba, 1.
*grandiflora*, 6.
**laciniata**, 8.
**laevigata**, 4.
**lanata**, 7.
**Mariana**, 2.
monstrosa, 1.
*ochroleuca*, 6.
**purpurea**, 1.
*Sibirica*, 7.
**Thapsi**, 3.

HOW TO USE THE KEY

If you have a flower and want to know whether it is correctly named (probably one quarter of the trade names are more or less inaccurate), the "key" will help you to settle the matter in two minutes, without reading eight tedious descriptions which don't distinguish. First choose between the A's, then between the B's, and so on. The indention also helps the eye. A common-sense key for horticulturists should be based on garden characters, such as the color of the flowers, the season of bloom, the height of the plant, etc. But these are often worthless unless checked by technical botanical characters, and these are given in the descriptions below, using as far as possible the English language instead of the botanical.

KEY TO THE GARDEN FOXGLOVES

A. *Color of fls. purplish or white.*
  B. *Plant biennial or nearly so.* 1. **purpurea**
  BB. *Plant truly perennial.*
    C. *Height 1 to 2 ft.* ..... 2. **Mariana**
    CC. *Height 2 to 4 ft.* ..... 3. **Thapsi**
AA. *Color of fls. reddish brown* ..... 4. **laevigata**
AAA. *Color of fls. yellow or yellowish.*
  B. *Height 4 to 6 ft.* ..... 5. **ferruginea**
  BB. *Height 2 to 4 ft.*
    C. *Fls. marked with brown.* 6. **ambigua**
    CC. *Fls. self-colored.* ..... 7. **lanata**
  BBB. *Height 1 to 2 ft.* ..... 8. **laciniata**

DESCRIPTION OF THE SPECIES

1. **purpurea,** Linn. COMMON FOXGLOVE. A biennial herb, sometimes lasting for three or four years, sometimes treated more like an annual. Height 2–3 ft.: leaves rough, slightly downy, long, irregular spatulate: flowers large, about 2 in. long, from white to purple, or yellow, spotted. Var. **gloxiniaeflora,** Hort. is larger, more robust, with larger flowers and longer spikes. This is the best form for cultivation. Var. **gloxiniaeflora alba** is white. Var. **monstrosa,** Hort. is a monstrous variety, having a big bell-shaped blossom at the apex of each raceme.

2. **Mariana,** Boiss. SPANISH FOXGLOVE. Perennial, 1–2 ft. high: flowers rose or reddish; corolla bearded on the lower part inside and marked with brownish-red spots. Spain.

3. **Thapsi,** Linn. MULLEIN-LEAVED FOXGLOVE. Perennial, 2–4 ft. high: leaves oblong, rugose, tomentose, undulate-crenate, decurrent: flowers purple, with blood-red spots. July and August. Western Europe.

4. **laevigata,** Waldst. SMOOTH FOXGLOVE. Perennial, 2–3 ft.: flowers scattered, glabrous, corolla fulvous, reticulated, lip white, ciliated: leaves linear-lanceolate: radical leaves obovate-lanceolate. July. Danube and Greece.

5. **ferruginea,** Linn (*D. aurea*). RUSTY FOXGLOVE. Biennial, 4–6 ft. high: stems very leafy: leaves glabrous, sometimes ciliate: flowers rusty yellow, more or less reticulate, downy on the outside; lower lip of corolla ovate, entire, bearded. July. Europe.

6. **ambigua,** Murr. *(D. grandiflora, D. ochroleuca.)* LONG-FLOWERED FOXGLOVE. Perennial,

21. The woolly foxglove, Digitalis lanata. It is the second best species and deserves to be better known

2–3 ft. high: leaves ovate-lanceolate, coarsely serrate, sessile, downy underneath: flowers 2 in. long, yellowish marked with brown. Europe and W. Asia.

7. **lanata,** Ehrh. (This is perhaps the same as *D. Sibirica.*) WOOLLY FOXGLOVE. Perennial, 2–3 ft.: leaves oblong, ciliate: flowers 1–1½ in. long, grayish or creamy yellow, downy in a dense, many-flowered raceme; bracts shorter than the flowers. July and August.

8. **laciniata,** Lindl. CUT-LEAVED FOXGLOVE. Perennial, 1½–2 ft.: flowers yellow, downy, with ovate bearded segments, in racemes, bracts shorter than the pedicels. June. Spain.

CHARACTERS OF THE GENUS

**Digitalis.** (Family *Scrophulariaceæ.*) A genus of hardy biennial or perennial herbs numbering about eighteen or twenty species, of which only one is commonly cultivated in gardens. Numerous hybrids have been made, some of which are apparently cultivated under species names. Flowers are white, yellowish, or purplish, sometimes spotted, borne in tall racemes; corolla tubular, funnel-shaped, not quite regular, 4-lobed at the top, the lobes unequal and oblique, the upper segment shorter than the lower segment or lip: leaves usually in a large tuft at the base with a few much smaller leaves along the stem.

22. The improved or gloxinia-flowered strain of foxglove, which requires special culture. The best results are attained by sowing in autumn and keeping young plants over winter in coldframes

Is this too technical? Ask Egan, Gerard, Wright + Watson — it is the kind of thing they want to see — would better cut the botany.

# Originality in Gardens—By L. H. Bailey

Director of the College of Agriculture, Cornell University

WHY SO MANY AMERICAN GARDENS ARE COMMONPLACE OR UNIMAGINATIVE—SUGGESTIONS FOR MAKING THEM DISTINCTIVE—FIVE GARDENS THAT EXHIBIT CREATIVE GENIUS AND SHOW THE POSSIBILITIES OF ADAPTATION

ORIGINALITY in gardens as in everything else, may be good or bad One of the most "original" gardens I ever saw was in a little town in southern Michigan It was a mere front yard, I suppose not more than fifty feet square. It was an intricate geometrical pattern, as clever as the design of a carpet, with diminutive splashes of gravel, knots of box, and shear-made treelets. It was entertainingly interesting and indescribably ugly.

The genius of true originality is as rare as common sense. To be original and not to be self-advertising may be called the rarest of attainments. In our efforts to be unlike others we become actors; and the pity of it is that everybody knows that we are acting. The true originality is not conscious of itself. Perhaps my reader will be able to make some application of these handsome sentences: if so, he is to be congratulated. I meant only to say that the best originality in gardens consists merely in working out to perfection some idea that will exactly adapt the place to its conditions and surroundings.

The best window-garden I ever saw was made by a woman who probably knew less than a dozen kinds of plants. The place was a three-window bay, of which the center window was left bare of plants. The two side windows were staged with well-grown geraniums, oxalis, othonna, farfugium and two or three other very common things, and festooned with German ivy. The poorest window-garden I ever saw was my own, with plants that every one knew were bought of the florist.

The above example gives the key to good original gardens—the garden must be one's own in the sense that one makes it or directs it so that it shall express the very spirit of the place and of the owner.

Last summer I drove through a beautiful well-wooded road in southeastern England. At one place the rear of a house stood close against the highway, presenting no unusual point of interest to the passer-by. I drove in at the gate, and behold! a garden such as poets dream of! And in truth it is a poet's garden. An open space of velvet lawn, sides piled high with lusty growth of tree and shrub and herbaceous plants, in the distance wide sweep of farm lands, at its back the fine old English residence set with pleasant vines —this was the picture. I thought I had never seen so choice a bit, and yet there was nothing over-wrought or high-strung in it. I saw many beautiful plants, but the effect of the whole was supreme. It was as truly a picture as if the image of it had been put on canvas. If the reader has read "In Veronica's Garden" or "The Garden I Love," he will know what garden I mean.

This garden illustrates a fundamental difference, I think, between the English and the American garden. The Englishman's garden is well-nigh as essential as his house. It is like an extra room to the residence. It is for the family rather than for the public. It therefore works itself into the developing consciousness of children, and garden-love becomes as much a part of the person as books and furniture and music do. With them, the love of the soil is bred in the bone. Englishmen of all classes love farming and gardening. In this respect our conglomerate people are centuries behind the English. The American garden is likely to be all in the front yard. It is usually of the look-at-me kind. It is made for the public to see. This may contribute to public spirit and civic betterment, but it loses in originality and vitality.

One of the most original gardens I know is that of Mrs. Annie L. Jack, in the Province of Quebec. Mrs. Jack is herself a practical garden-lover—this is essential to any originality in any garden. Her original materials were crude and austere—a severe climate, an open piece of land far in the country. It is a farm-wife's garden. Against the low stone house she laid out an acre in parallelogram, with the long way extending from the residence. The ground slopes slightly from the center to the sides. Trees for shelter were planted to the windward. On the opposite side were planted such hardy fruits as would thrive in the climate. Between these for many years vegetables were grown, being gradually forced into the freer inward borders as the trees and grape-vines developed. The center of the place was made a grass space, bold and generous in allowance. The borders are used mostly for flowers, with a liberal admixture of interesting shrubs. It will be seen that the general outline of the garden was rigidly determined; but there has been enough elasticity of details to allow of new planting schemes every year. From first to last it has been an experimental garden. The novelties here find place until they prove or disprove themselves, but there is always such a preponderance of staple things that the garden as a whole is never disappointing. In the secluded and sheltered nooks plants far out of their range may be grown. I saw a thriving small tree of *Magnolia stellata*. The reader will note that this is not a fruit-garden, or a vegetable-garden, or a flower-garden. It is merely a garden, in which all the æsthetic and practical desires may be satisfied. This garden has been profitable. Fruits and vegetables have been sold. The children worked in it and have learned to love it. One of the boys had a "garden" of his own when three years old. I was greatly impressed with the influence that this garden has had on the attitude and ideals of the family. If I am not mistaken, it has had an intellectual influence like a school and a spiritual influence like a church. Perhaps my reader has read homelike pieces of prose and verse that have come from this garden.

In the western part of San Francisco is a garden as unique as Mrs. Jack's, but in every way a contrast to it. It is a garden that appeals to you because of its interesting plants, and not as an organism. Mr. Abraham is a passionate lover of anything that has roots and leaves. He will cherish any sprig from any part of the world, and, what is more, he will make it grow if there is a germ of life left in it. He will put this plant wherever there is an unoccupied inch of ground—alongside a walk, in a corner by a crooked little greenhouse, in a pot in some out-of-the-way place, or in a row in the middle of the lot. Everything is full of plants—roses, palms, fuchsias, cacti, and a thousand things all growing in cheerful abandon. The very lack of arrangement is its charm. If it were "laid out" it would be as uninteresting as an antiquarian shop with mahogany counters and plate-glass windows. The place is the man. I would not charge an item of it.

I like best those amateur gardens that seem to be a real part of the home. I have another such in mind; it is in central New York. It is a two-acre space, practically square. It lies a short distance back of the residence, and is bounded on the house side by a high-sheared evergreen hedge. When you visit this family you may sit in the drawing-room or you may walk straight through the house and through a gateway in the hedge and into the garden. There you find yourself in a little world of your own—the hedge in front and double rows of wind-break hemlocks and pines on the far boundaries. The walk leads straight on through well-clipped sodland and between entertaining rows of all manner of pleasant herbs, old and new. You may digress to a seat or two under trees, or keep straight on to a stone seat against a short hedge at the very end of the walk. At this seat, or at the front entrance to the garden, you may take side-paths to the pine-belt, and there walk in a noble avenue made by the duplicate lines of trees. As you turn the farthermost corner in this avenue you come on the vegetable garden, itself occupying one of the quarters of this charming place. You will find no elaborate display, no greenhouse, no corps of gardeners. It is only a quiet garden-space set off from a country of farm land and attached to a refined home.

Pope long ago wrote that the gardener should "consult the genius of the place in all." This is what makes the garden original and worth the while, because the "genius of the place" is different in every garden, and the expressing of it with plant materials portrays the capability and personality of the gardener.

# The Training and Pruning of Grapes—By John Craig

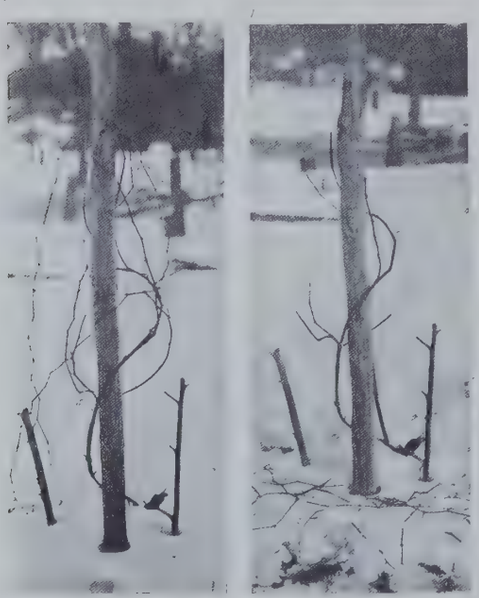
Professor of Horticulture
Cornell University

Photographs by L. H. Bailey, H. B. Fullerton, and Arthur Hewitt

ONE of the earliest recollections of the writer on grape-training matters was associated with a whitewashed board fence, covered or nearly covered with a luxuriant vine-growth thickly interspersed with huge clusters of black grapes. These grapes were in the garden of one of the residents of the little town of Niagara-on-the-Lake. The

23. Fan system—before trimming. This system is chiefly used in sections where vines have to be laid down and covered in autumn

variety was Black Hamburg. It was the wonderment of the community and the delight of the owner, Mr. Pafford, who was then mayor of this somewhat ancient, overgrown Canadian village. Think of growing and ripening Black Hamburg, a hothouse grape, in even the most favorable portion of Ontario! Mr. Pafford selected a warm place and made it warmer by cutting off the north winds with a board wall. He concentrated that still more by whitewashing this tight, high board fence on the south side. His grapes were carefully pruned so that each vine should have just so many fruit-bearing buds, the fruit so thinned that each cane should have just so many bunches, and the berries thinned in the bunch so that all could develop fully. Hamburg was not the only European grape which Mr. Pafford grew. Golden Chasselas and Black Muscats also decorated his boundary line. Nor did he stop with these. Figs in variety were grown in this wonderful garden. Exhibits of these and of the grapes were made at the World's Fair in 1893 and caused people to open their eyes and ask questions. Mr. Pafford's Hamburg grapes will live in the history of that part of the country.



24-25. Post training. This system is satisfactory only where there is plenty of heat to ripen the grapes, and is best for weak-growing varieties

Of course, it goes without saying that the grapes and figs were taken from the trellis in winter, laid on the ground and well "happed" up with soil, forest leaves and other mulching material.

The amateur can often take advantage of walls upon which to train grapes; he can also use grapes for covering unsightly objects. They are exceedingly tractable and plastic by nature, and accommodate themselves to apparently difficult situations. The training of grapes is one thing. This means the adopting or choosing of a certain method of growing them. Whether the grower shall lead out two arms at right angles, and in opposite directions from the upright stem, and from these direct parallel upright canes; or whether he shall lead out in radiating fashion several canes from the base; or whether he shall lead long canes up over an arbor for the purpose of completely enshrouding it, are matters of training.

The pruning of grape-vines consists in cutting back the right amount of the current season's growth—the amount which experience says a grape of a certain habit of growth and certain amount of individual vigor should respond to properly. The pruning of grapes is a simple matter when their habit of growth is understood. We prune either to check or stimulate vigor, to encourage fruit production, or, on the other hand, to discourage it.

The fruit of all varieties we deal with in the North and East is borne on the wood produced during the current year's growth, and this wood springs from buds produced by last year's shoots. Each bud of last year—except those which come from suckers or base shoots—is a promise of a fruit-bearing shoot, and each shoot is a promise of from two to five bunches of grapes. These promises are not all fulfilled, but they are realized in proportion as the grape is healthy and the season favorable. It is, then, not difficult on a five- or six-year-old grape-vine to estimate with a fair degree of accuracy how many bunches of fruit we may have if we prune to leave fifteen or twenty fruit-bearing buds. With this general proposition in mind, the pruning of the grape is not difficult.

The purposes of training, on the other hand, are to dispose the grape suitably so that it may ripen its fruit evenly and well. The amateur can afford to train as his fancy dictates. The commercial grower must train to suit his climate, soil, varieties, and the kind of labor which he is obliged to employ. In either case, the object is to produce the approximate number of fruit-bearing shoots the vigor of the variety suggests that it should carry for the best results.

The "fan system" is used most freely where vines are protected in the autumn by

26. Fan system—after trimming. The vine should not be allowed to bear the second year after setting, and only a small crop during the third year

laying them down and covering them with soil. The canes are carried up from the ground in a divergent manner, in the form of a fan. The old canes are cut out and removed from time to time as they grow too rigid to allow of easy bending. At the close of the growing season, after the leaves have fallen, the greater number of the canes are cut back to the last bud. A few of the strongest are left, in order to carry the fruit to a greater height upon the trellis.

There is a tendency on the part of the grower who prunes after this fashion to allow too much wood to remain on the plant in the autumn, especially when it is young. The vine should not be allowed to bear the second year after setting out, and only a small crop the third year. I realize that instructions of this kind are much easier given than understood and carried out. A heavy crop of fruit borne by young vines the third year after planting will sometimes ruin the yield for two or three succeeding years, and occasionally destroy the vines. The prospective crop may be more or less accurately estimated by multiplying the number of buds by two; this kind of estimate may be used as a guide in pruning. The fan system aims at starting the canes near the ground, giving the vine practically several main stems.

The "high renewal" system, or modifications of it, is probably more generally adopted throughout commercial grape sections than any other. It aims at starting the head about two feet from the ground, so that the main branches are tied to the lower wire. The vine is usually started the second year with two canes striking out in Y-shaped fashion. In the fall of the same year all side shoots are cut back closely and the main canes cut back to four or five buds each. The third season, three or four of

27. Before trimming

28. After trimming

29. After trimming and tieing

The horizontal two-arm system, especially adapted to sections of the country where it is advisable to give the vines winter protection

the strongest shoots springing from the center of the head are allowed to grow. In the autumn these replace the outer arms, and are in turn replaced by them the following season. The aim is, then, to renew the fruiting canes from different parts of the old wood every year. The number of buds to be left will depend upon the strength of the variety and the individual plant. Concord, Niagara and Worden will carry with safety more wood than Moore's Early or Delaware, and this is true without reference to the method employed. As the canes grow they are tied to the wires of the trellis, distributing the foliage as much as possible. It is usually found necessary to go over the vineyard two, three and occasionally four times during the summer.

The "horizontal two-arm system" is especially adapted to sections of the country where it is advisable to give the vines winter protection. Two strong canes are trained in opposite directions. The laterals springing from these are trained perpendicularly. In the autumn the laterals are cut back to short one-eye spurs. When the spurs become weak they are renewed, as is an entire arm occasionally. This system calls for a four-wired trellis, in order to properly tie the strong upright growths. Well adapted to wall or high garden trellis, the three methods of training described thus far are all on the upright plan; in those which follow the vines hang down

The "four-cane Kniffin" is essentially a commercial system and exclusively adopted in field culture in certain parts of New York State. In this system the trellis consists of two wires. The main cane is carried to the top wire and from it an arm is trained each way on the two wires. The side canes are tied to the wires and the lower ends allowed to hang free. Several modifications of this system are in use.

We now come to over-head or arbor systems. In one of these systems (and there are many which may be modified to suit the needs of the amateur) the vines are carried up seven-foot posts and allowed to rest on cross wires, forming in this way a kind of arbor. One plan is to nail a cross-piece to each post at right angles to the pole. This extends three feet on each side. Three wires are stretched on these, one at each end, the other in the middle to the posts. The trellis is thus a horizontal one and six feet above the ground. An unbranched trunk is carried up to the middle wire and the canes spread either side from this point. A T-shaped head is considered the ideal form. Another over-head system is known as the "cross-wire Kniffin." In this a small post six or seven feet high is set for each vine. The tops of the posts are connected by cross wires. The vines are trained up the posts, and on reaching the top four arms are trained outward, one on each wire. In the autumn the arms are cut back to six or eight buds each. The amateur may start two canes from the ground, spreading as they rise, and may depend upon laterals to cover his arbor.

"Post training" is only satisfactory where there is plenty of heat to ripen the grapes, and gives fullest satisfaction with weak-growing varieties. Four- or five-foot stakes may be used. Two or three canes are trained up each year from the ground. It is strictly a renewal plan. Much summer pruning and pinching are required to regulate growth. But on the other hand, the vines may be tucked in four by four feet apart. Delaware, Golden Drop, and Campbell's Early can be grown on posts with some satisfaction.

Pruning of the annual kind may be done after the leaves are killed by frost or the wood is thoroughly ripened. When the vines are taken off the trellis, as in 30-degree-below-zero sections, the pruning is done just before laying the canes down in autumn. Where the vines do not need winter protection, the pruning may be done any convenient time during late fall or winter. It should not be deferred till the sap flows in spring, as vines pruned at this time are often weakened by excessive bleeding.

It is always desirable to remove the shoots that spring from or near the base of the vine, except when they are required for a special end. These shoots are quickly broken out, or nipped off when soft and succulent. A certain amount of shortening back is also desirable. This should not be done too early in the season. If pinched early in the growing season, a great mass of laterals is produced and the amount of work very much augmented.

30. An open arbor. The vines are trained upward in the most direct manner. A single stem from which laterals are carried off may be used, or two or more stems may be started from the ground

31. A HOUSE FOR WATER-LILIES WHEREIN A BUSINESS MAN MIGHT GROW THE KINDS THAT OPEN IN THE EVENING



This cut does not illustrate the

# From Dining-Room to Tropics—By Frank H. Presby

A NEW IDEA FOR AN INDOOR GARDEN OF NIGHT-BLOOMING WATER-LILIES WITH WHICH TO SURPRISE ONE'S GUESTS AFTER DINNER

I DO not know of a more dreary place for the true plant-lover than the usual stereotyped conservatory. Palms, crotons, rubber plants, pandanus, and the like, are all very well in their way, but any one can see them in a better condition in any florist's store or greenhouse. Even when blooming plants, grown elsewhere to the flowering stage, are brought in to give color to such a conservatory, you are likely to have something more or less conventional and unimaginative. When I have a few thousand dollars to spend, I expect to build a conservatory that will be very different from any I have ever seen. My plan will be, by one step, to transport you from the Arctics to the tropics. It will open from my dining-room, but the door leading to it will be locked during dinner, with a curtain in front of the door so that no one would suspect it was there. After dinner, when the cigars have been passed, the curtain will be drawn aside and a button touched will light up the conservatory. When the door is opened and we leave the dining-room my guests will find themselves in the tropics. The walls will be covered with ferns, bunches of bamboos and papyrus will stand in the corners, and the middle of the house will be given to a large tank filled with the tender night-blooming lilies, the varieties that open soon after sunset and remain open until noon the next day. Many varieties will open and close for four or five days in succession. The water in the tank must be heated to give results, and the plants can be put in tubs.

I know what varieties to get, for I visited the leading dealer in aquatic plants when the water-lilies were in bloom and made note of the kinds I liked best.

The reds I want are Frank Trelease and Rubra rosea. Of the pinks, I like best O'Marana and George Huster; of the whites, I prefer Jubilee and Dentata. Deaniana and Kewensis, two light pink varieties, are also very good. There are no yellows.

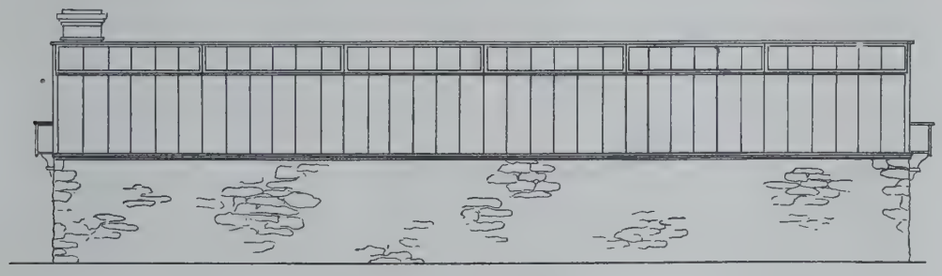
I plan a house about 50 x 20. The walls will be of brick about six feet high, with an inside lining of tuffa stone from Berea, O. This stone is rather soft when first taken out, but hardens after it has been exposed to the air a short time. The surface is very like coral and it can be found in large as well as small pieces. It will be laid up against the brick wall with cement mortar, leaving many pockets for planting with ferns. These, with the bamboos, papyrus and water-lilies, will be all the planting. I expect the ferns to "self-sow" and multiply without any care on my part. Eventually they should cover the walls with a living mass of green.

The greatest cost of running such a house will be the heating. The cost could be reduced by putting the boiler in the cellar of the house and thus do away with the chimney and boiler pit. After the ferns are planted they will flourish for many years, and the first cost of the water-lilies would not be a large item. Japanese gold-fish would thrive in such a pool. The house must be well-lighted to show the color of the flowers. I have a notion or two about a novel and effective way of lighting such a house. One of the leading firms of greenhouse architects has made the following estimate of the cost of the water-lily house erected complete for me, at Montclair, N. J.:

| | |
|---|---|
| The glass roof | $1,025 |
| The masonry | 1,800 |
| Heating plant | 575 |
| | $3,400 |

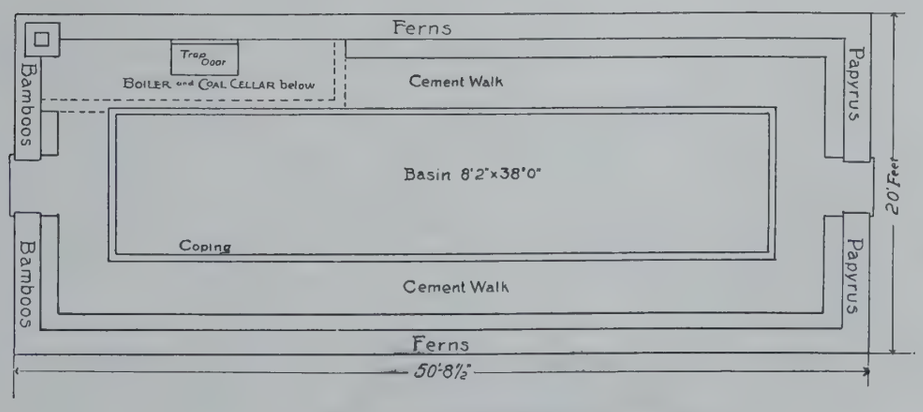
The woodwork would be clear, air-dried, red Gulf cypress. There would be two lines of roof-ventilating sash, each line operated independently. The masonry work would be of stone, bedded in concrete. The boiler-cellar would be about 18 x 4.

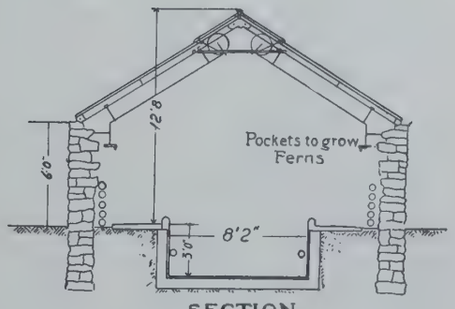
A small outdoor water-garden is just the thing to make one's place different from the general run of commonplace gardens. Why not try some hardy water-lilies this year? I have two pools in my garden, and both are a source of great pleasure to my family and myself, as well as the stranger in my gates. One is planted with water-lilies and the other with lotus. In the former we have flowers from early spring to late autumn. The colors are white, yellow and pink. The lotus blooms for a period of about two months, and I have nothing in my garden to compare with its flowers in beauty. If you are a lazy gardener, try water-lilies. They require no watering, when everything else is drying up, and no weeding at any time. They multiply so fast with me that most of them have to be dug up every spring, and the increase sells at good prices. Do not grow geraniums, cannas, coleus, and the like, when so many beautiful plants can be grown so different from your neighbors.



SIDE ELEVATION

END ELEVATION



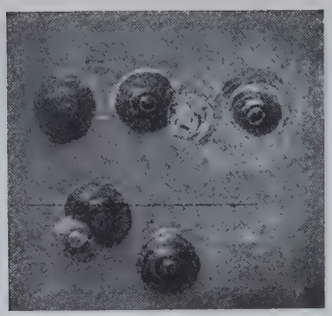




SECTION

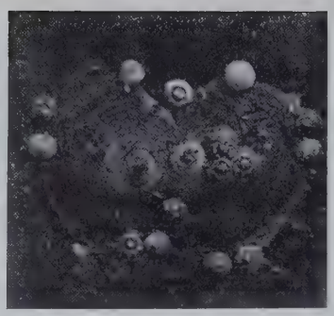
32-35. Plans of the novel greenhouse for water-lilies which can be attached to a house already built



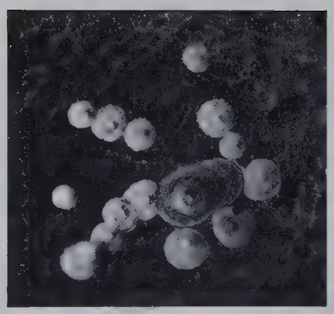
These drawings are too big & coa[illegible]



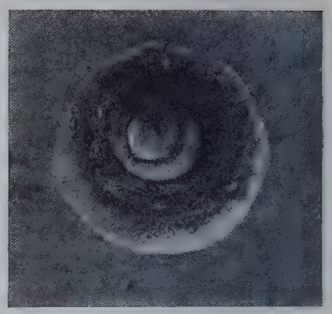
36. Several young scales in the black stage. (Much enlarged)



37. Adult female scales and young scales in the white stage. (Enlarged)



38. Male scale and young scales in the white stage. (Enlarged)



39. Adult female scale. (Greatly enlarged)

# How to Kill the San José Scale—By E. P. Felt

State Entomologist of New York

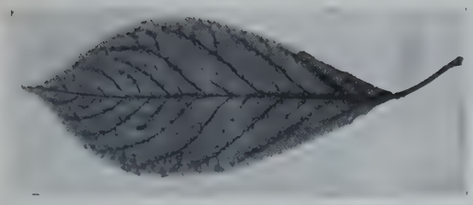
IS THE SAN JOSÉ SCALE IN YOUR NEIGHBORHOOD?—IF SO, YOU WANT TO DO SOMETHING ABOUT IT AT ONCE!—THE GREATEST INSECT PEST OF MODERN TIMES

THE San José scale (pronounced *Hozay*) is widely distributed in America, and especially in the vicinity of some of our larger cities, particularly New York. Its destructive powers are greatly increased by its small size and obscure color, which combine to render it extremely inconspicuous, and portions of trees are frequently covered by the pest or limbs killed before the owner is aware of any trouble.

This species may be distinguished from all others by the form of the female scale, it being grayish or yellowish gray, about one-sixteenth of an inch in diameter, and with a yellowish central elevation representing a cast skin. There are several allied, nearly circular scales, with the elevation or nipple a little to one side of the centre, which somewhat resemble this species, but fortunately these very rarely occur in sufficient numbers to cause appreciable damage. Young San José scales are dark gray, sometimes almost black, with a distinct central nipple bounded by a grayish ring. Both adult and young when located upon green twigs, leaves or fruit produce a very characteristic purplish discoloration in their immediate vicinity, and for this reason the pest is easily recognized in mid-summer upon foliage and fruit, since it has a marked tendency to establish itself upon the latter, particularly apple and pear. This characteristic stain also occurs in underlying green tissues, and may be exposed by cutting the infested bark. Any abnormal, rough, scurfy appearance upon twig or branch should arouse suspicion. Sometimes this is due to abnormally developed or peculiar lenticels, and occasionally fungi produce very much the same general appearance as a bad infestation of San José scale. If living scale insects are present, the drawing of an inclined knife-blade or even one's thumb-nail over the surface will cause the exudation of a yellowish fluid from the crushed bodies of the underlying insects. There are two native species which are frequently confused with the San José scale, though both are very different. One, the apple-bark louse, has a brown, elongated, slender, pear-shaped, usually slightly curved scale about one-eighth of an inch in length. This species occurs upon many trees and shrubs, and winters in the egg. The other, the scurfy bark louse, has an irregular white or dirty white scale about one-tenth of an inch in length, which expands irregularly from a slender, yellowish tip. This, like the apple-bark louse, winters in the egg and occasionally forms a thick, dirty white incrustation.

40. Spraying a Japanese quince with a little broom

An understanding of the life-history of this insect is essential to its intelligent control, otherwise our efforts may be sadly misdirected. The winter is passed by this insect in a half-grown condition. The overwintering scales are small, black, circular objects with a central nipple and one or two grayish rings. Vital activities are nearly suspended during the winter, being resumed with the approach of warm weather, and the insect, lying beneath its sheltering scale, begins once more to drain the tree of its sap. This is accomplished by means of a long, slender proboscis composed of several thread-like setæ, which are thrust into the bark and serve as a tube through which the pest may draw its nourishment from the underlying tissues. The first outward indications of life are seen in the appearance of the winged males, slight, reddish insects with two membranous, almost veinless wings, about the middle of June in the latitude of New York. The minute, yellowish, crawling young, appearing for all the world like animated specks, escape from under the protecting shelter of the mother about this time, and for a period of approximately six weeks the females continue to produce young, each averaging about four hundred, or from nine to ten every twenty-four hours. The new-born wanders forth in search of a favorable place to establish itself, and within relatively few hours (on an average a little over twenty-seven) settles at some convenient point and works its slender, hair-like beak through the bark. If it be a female, it never moves from this spot, and soon loses legs, antennæ and eyes and becomes virtually an animated pump drawing the vital fluids from its host. The development of the protecting scale begins even before the young has selected its feeding-place, as very minute, waxy filaments which spring from all parts of the upper surface of the body, rapidly becoming thicker and slowly matting down to form the circular, white scale with a depressed ring and central elevation. These insects are then in what is known as the white stage, and in a few days the covering scale turns to a black or dark color with one or more lighter rings. The female scale insect requires about thirty days to attain maturity, and the male from twenty-four to twenty-six; thus the round of life may be completed in from thirty-three to forty days. Detailed studies made at Washington show that four entire generations are normally developed, and that under certain conditions there may be a partial fifth. The fecundity of the insect, in connection with its ability to produce a number of generations annually, results in an enormous increase, and in the vicinity of Washington it is estimated that a single individual under favorable conditions may in one season become the progenitor of over three billion. It is no wonder that many trees succumb to the fearful drain. The short period necessary to complete the life cycle, and the extended time during which each female produces



41. The scale follows the veins. (About natural size)

42. Plum twig badly infested. (About natural size)

43. Infested plums, showing reddish discoloration

young, results in almost continuous breeding from the latter part of June till into October and, under certain conditions, November and even December. The period of activity is longer in the southern than in the northern States, and the destructiveness of the insect correspondingly greater. This species has been recorded upon a large number of food plants, but is very injurious to comparatively few. The fruit-trees—peach, pear, plum, cherry and apple—are preferred in about the order named. Currant-bushes are very subject to injury, and among ornamentals none are worse affected than Japanese quince. Lilacs, snowberry, willows and some other ornamentals are also liable to serious injury.

The method of spreading is of considerable importance, particularly in places where the scale has not become established. It is conveyed long distances almost entirely upon plants. The danger of budding from infested stock is greater, since the scale has a marked tendency to gather about buds and other rough portions of the bark. Aside from this, the pest can spread only by the crawling young being carried either by birds, other insects, winds or animals. The first three can hardly be controlled. Great care should be taken during the breeding season not to allow men and teams which have been working among infested trees to go directly to uninfested ones, since the scale is easily conveyed in this manner.

This insect is difficult to control not only because it is exceedingly prolific, but largely on account of its ability to withstand the action of various insecticides, and particularly because of its extended breeding-season. It is a sucking insect, and, as stated above, draws its nourishment from underlying tissues, consequently the application of arsenical poison or any similar material which lies upon the surface of the plant and must be taken into the stomach has practically no effect. It can be controlled only by the use of some substance powerful enough to penetrate the scale and destroy the underlying insect. A large number of materials have been employed for this purpose. The nearly naked, crawling young are unprotected, and on that account easily killed. The great difficulty of attempting to check the insect in this stage is that young are produced during an extended period, and therefore the best results have been obtained by the use of materials strong enough to penetrate the sheltering scale of the adult, and such substances are so strong that they can be applied to deciduous trees only when in a dormant condition. The best results, as a rule, have been obtained by early spring applications, preferably deferring the treatment till shortly before the buds begin to open.

A wide variety of materials have been employed, prominent among which may be mentioned whale-oil soap solution, kerosene emulsion, crude petroleum and its emulsions, and the lime-sulphur washes. The whale-oil soap solution at the rate of two pounds to one gallon of water is fairly effective though costly, and in commercial orchards has quite generally given way to other materials. Both kerosene and crude petroleum, in pure and mechanical emulsions, have been employed to a considerable extent, but in most cases they likewise have been displaced by the cheaper, safer lime-sulphur washes which, as a rule, have been most successfully employed. There are many formulæ for these latter, some of which have been used for years and others developed within twelve months.

A thoroughly safe, well-tried wash may be prepared as follows: Take 20 pounds of lime and 15 pounds of flowers of sulphur; bring a few pails of water nearly to a boil in a large iron kettle; add the lime, following immediately with the sulphur; stir so as to intimately mix, and keep the combination boiling rapidly for at least thirty minutes, then remove and strain through a wire screen such as ordinary mosquito-netting, and dilute to 50 gallons with cold water. This is one of the simplest methods of making the wash, and when properly prepared and very thoroughly applied the results have been most gratifying, as a rule.

This material can be made in a similar manner by steam boiling—that is, forcing a jet of steam into a barrel containing the materials, and this method of preparation is a very convenient one for those possessing steam-engines or desirous of making large amounts of the wash. Some lime-sulphur washes do not require any boiling water, and a method developed by Professor Lowe, and subsequently used by Professor Parrott, calls for the above-mentioned quantities of lime and sulphur and about 4 to 6 pounds of caustic soda to 50 gallons of water. The lime is slaked preferably with warm water, and while the reaction is in progress the sulphur, which has previously been made into a thin paste, is added and thoroughly mixed with the slaking lime. The caustic soda is then put in and water supplied as needed, the whole being stirred thoroughly. After the chemical action has ceased, the mixture may be strained and diluted as stated above.

44. Spraying San José scale in Mr. J. H. Hale's orchard in Connecticut. Running the mixture into the pumping barrel from the supply platform

In spite of the poor results reported from applications of lime-sulphur washes during the past season in New Jersey, we feel that in most sections of the country this material is by far the best for controlling this pernicious insect. It is not only cheaper, but when thoroughly applied appears to be fully as effective as any other, and there is far less danger of injury to the trees. The kerosene limoid spray may possibly be equally valuable, but it cannot be recommended for more than experimental work till it has been further tested. The question of what apparatus to use for spraying is also important. Select a stout, preferably iron pump, with broad valve-seats, because high pressure is needed and lime-sulphur washes are extremely caustic and therefore injurious to any but well-made pumps. A power outfit is advisable wherever extensive applications must be made. Ten to twenty or thirty feet of hose and a six- to eight-foot extension nozzle may be classed with the necessities. Most essential of all is a thoroughly reliable man to hold the nozzle, because, unless the trees are very well covered with the spray mixture, poor results are likely to follow. It is advisable, before spraying, to cut the trees back as much as possible, and in sections where the scale is prevalent, low heading will doubtless become popular because of the greater ease in fighting this pest. Another important point is to spray with the wind whenever conditions permit, making the application on the other side of the trees when the wind is blowing in an opposite direction, since it is almost impossible to thoroughly spray a tree, particularly a large one, without the aid of a favorable breeze. Spraying outfits are rather expensive, and the man with a few trees will undoubtedly find it much cheaper to hire his spraying done; and in some cases, at least, co-operative neighborhood work will prove the most economical and satisfactory method of controlling this dangerous pest.

The article on "Spraying Tall Shade Trees" in the February number of *Country Life in America* shows the kind of power spraying outfits used by progressive park superintendents, describes a new way of making a living out-of-doors, and the new type of neighborhood organization to get the best spraying done for the least money.

Is this object inable

Commercial orcharding has no place in this magazine

# The Best Evergreen Trees

## WHY WE WASTE THOUSANDS OF DOLLARS A YEAR IN PLANTING WHICH HARDY CONIFERS COME—THE IMPORTANT KINDS FRO

By HE

THE reason why people throw away thousands of dollars a year in buying evergreens that die or become ragged is largely an historical one. The great bulk of evergreen planting that proves unsatisfactory is composed of six species, English yew, Irish juniper, Norway spruce, Scotch pine, Austrian pine, and silver fir. If you had the hardihood to say this to an audience of a thousand horticulturists, your voice would be drowned in a storm of mingled howls and cheers. Every intelligent European emigrant to this country knows those trees. They are famous in Old World literature and dear to the hearts of the people. They are cheap, fast-growing trees, and every nurseryman has them, because the people demand them and they are profitable. Moreover, every one can tell you, off hand, of cases where they have been successful. And yet, sooner or later, they and all other European conifers are bound to be more or less disappointing. If it is simply a question of beauty, there is a chance for debate, because a man usually considers that he gets his money's worth if a tree retains its beauty for twenty or twenty-five years. But if one wants evergreens for permanent comfort and privacy, those mentioned above are too short-lived. The Norway spruce, which is chiefly responsible for the popular notion (wherever it exists) that evergreens are dismal and monotonous, is likely to become ragged after twenty years, and therefore less efficient as a wind-break or screen. A more permanent tree of the same dark style of beauty is the oriental spruce. The white pine makes a more lasting wind-break than the Scotch and Austrian pines in most localities, and the white spruce is probably the best of all; while the white fir of the Rockies withstands heat and drought better than the silver fir or indeed any other fir. The English yew and Irish junipers are much tenderer than the other offenders; the Japanese yew and American juniper have the same types of beauty and are perfectly hardy.

### A DECLARATION OF INDEPENDENCE

For every European evergreen that is dear to the American people, another species of the same group can be mentioned that has the same style of beauty and is better adapted to our climate. In many cases, the two species will be so much alike that the ordinary person can hardly tell them apart. We declared our political independence of England long ago, and it is high time that we declare our horticultural independence of Europe. Until we recognize that the climates of Western Europe and Eastern North America are fundamentally unlike, we shall never make this country one great garden as England is, and meanwhile we have squandered millions of dollars on European evergreens, roses, and other plants that feel orphaned when they get a thousand miles away from the Gulf stream. The trade and social affinities of the northeastern United States are with Europe, but our climatic affinities are with northern Japan, Korea, and China; with the eastern slope of the Rockies; and with Asia Minor. Those are the regions of hardy evergreens. The chief regions of half-hardy evergreens are Europe and California and the southern slope of the Himalayas.

### TWO STRIKING EXAMPLES

The Douglas spruce is hardy only when raised from seeds gathered in the mountains of Colorado. Many people complain that this tree is tender in the Northeastern United States. This is because the tree was first discovered on the Pacific coast, whence the seeds were brought to Europe and thus got into the nurseries of the world. The regular course of horticultural trade has been for our nurserymen to get their stock of trees or plants that are native to America, not from the places where they grow wild, but from European nurserymen. It was long supposed that none of the Pacific coast trees would ever grow to any size in the East, and it was a great day for American horticulture when Parry, the botanical collector, discovered the Douglas spruce growing wild in Colorado. All the hardy specimens of Douglas spruce in cultivation are descendants of Rocky Mountain stock, and it is important to note that the stock must have been gotten from the mountains, not the valleys. This one bit of information may save a man many dollars and much disappointment.

Another instructive example is the case of the juniper. Ordinarily, the same species of evergreen does not grow on both sides of the Atlantic, but the common juniper (*Juniperus communis*) grows nearly everywhere in the north temperate and subarctic zones. In every distinct climate, however, it assumes a slightly different form. Some of these forms are the Irish, the Swedish, the alpine or Siberian, the American, the hemispherical, the pendulous, and the typical European form, which is more columnar than ours. Ordinarily, the differences between a European conifer and its American representative are the differences between two species of the same genus, and it is fair to use this fact as a rough measure of the differences in climate that have produced these results; but in the junipers, the difference is considered to be only that between varieties of the same species. The practical lesson for us is this: Instead of the Irish juniper (*Juniperus communis*, var. *Hibernica*), plant the American juniper (*J. communis*, var. *Canadensis*).

### THE TWENTY-FOUR HARDIEST EVERGREENS

| *Northeastern U. S.* | *The Far East* |
|---|---|
| White pine | Korean pine |
| Pitch-pine | Small-flowered pine |
| Red or "Norway" pine | Japanese umbrella-pine |
| White spruce | Short-bracted fir |
| Red spruce | Veitch's fir |
| Hemlock | *Picea Ajanensis* |
| American arbor-vitæ | Lace-bark pine |
| Red cedar | Japanese yew |
| American juniper (or ground cedar) | Japanese arbor-vitæ |
| *Rockies* | *Asia Minor* |
| White fir | Cicilian fir |
| Engelmann's spruce | Nordmann's fir |
| Douglas spruce (tender from California) | Oriental spruce |

### SOME FAMOUS TENDER EVERGREENS

| *Europe* | *California* |
|---|---|
| English yew | Redwood |
| Irish juniper | Big tree |
| *Africa* | Monterey cypress |
| Mt. Atlas cedar | Lawson's cypress |
| *Himalayas* | Douglas spruce (hardy from Colorado) |
| Deodar | |
| *Australia* | *Chile* |
| Norfolk Island pine | Monkey-puzzle |
| *Araucaria Bidwillii* | |

### THE NINE ABSOLUTELY SURE KINDS

Seven years ago, in the last number of *Garden and Forest*, Professor Sargent finished his memorable series of papers on conifers which has ever since been considered a sort of horticultural gospel by students of evergreens. He declared that there were only twelve species of conifers that had shown themselves able to grow to a large size and preserve in cultivation here their mature beauty for a long period. These are the white, red, and pitch-pines, the white and red spruce, the red cedar, the juniper, the American arbor-vitæ, the hemlock; and three deciduous species—the European and American larch, and the ginko. Inasmuch as the last three have no more value for comfort and privacy than any other deciduous trees, they have been omitted from the list of the twenty-four hardiest evergreens given above. The rest of that list of twenty-four is composed of species which Professor Sargent said had stood the test successfully for twenty-five or fifty years, which, however, he did not consider a long enough period. The nine sure kinds are all American.

### WHY EVERGREENS DIE

Thirty below zero is not nearly so deadly to evergreens, or anything else, as alternate freezing and thawing. No man and no

# or the Northern United States

## THE WRONG KINDS—THE SIX CHIEF OFFENDERS—THE REGIONS FROM EACH COUNTRY—WHEN AND HOW TO TRANSPLANT EVERGREENS

BY HICKS

Truth should have been credited here

plant enjoys being wakened a dozen times during the course of a nap. But these interruptions are much harder on evergreens than on deciduous plants, because the former have an immense mass of foliage to support all winter. Just as soon as the sun comes out strong, the leaves start to "transpire," *i. e.*, evaporate moisture (though less actively than in spring), and if the roots are frozen they cannot supply moisture fast enough to take the place of what the leaves give off. That is why evergreens so often look yellow and sickly in March. Wind often dries out soil or foliage faster than sunshine, and, broadly speaking, our winter winds are from the continent rather than the ocean, and, therefore, dry. The other great cause of mortality among evergreens is summer drought.

### HOW TO MAKE THEM LIVE

The bother and expense of watering trees can usually be avoided, except, of course, at planting time. The soil generally has enough moisture; the only thing to do is to prevent its escape, and that is what a mulch is for. Put six inches of coarse litter around the base of every newly planted evergreen. This prevents unnecessary evaporation from the soil. Nature does the same thing. Go into any pine grove, and you will see the forest floor carpeted with needles. These dead leaves, which the evergreens have shed, prevent the moisture from rising out of the ground, save through the trees themselves.

### WHEN TO PLANT EVERGREENS

The common notion about planting evergreens without balls of earth is that the best time to set them is in April or May, when the soil is warm enough for the roots to begin action at once and before the new growth is long enough to wilt. The bulk of the planting is done then. A second season for planting evergreens is in August or September, so that the roots may become established before winter. But if an evergreen has a large ball of earth, full of feeding roots, and is carefully wrapped with burlap or something to protect the fine roots from the air, it can be moved any month in the year. This may or may not be more expensive, and the larger a tree, the more important it is that it be "root-pruned" before being taken up. To "root-prune" a tree ten to thirty feet high, draw a circle three to ten feet in diameter around it, dig out the earth to the width of two spades, cutting off and bending around the roots, cut partly under and cut the tap-root if the tree has one, fill the trench again, and leave the tree for a growing season, or until it has been accustomed to the new conditions and filled the ball of earth with fine new roots.

### TRANSPLANTING NATIVE EVERGREENS

When you dig an evergreen in the woods or preferably in the open, to take home, try to get as large a ball as you can possibly carry. Use a long nursery spade and dig in a circle with the edge, not the front, toward the tree. Do not try to cut under until you have a good, deep trench all dug. If you catch hold of the tree and jerk it over, you will split the roots. The larger root-ends should be trimmed off smooth. Wrap the ball tightly with burlap. It is far more important that the roots of evergreens should be protected from the air than those of deciduous trees, because the resin of conifers dries after a few hours' exposure to the air, and does not readily circulate again.

### MOISTURE-LOVERS AND DROUGHT-RESISTERS

In general, there are two types of roots among evergreens—the swamp type and the upland type. The arbor-vitæ is easy to transplant, because it grows where its roots have plenty of moisture, so that they do not travel far or deep, but make a compact ball of feeding-roots near the trunk. A pitchpine on a gravelly hilltop has to send its roots wide and deep to get moisture, and anything that makes a few large, thick roots is hard to transplant successfully. All the evergreens that the nurserymen sell in great quantities are fast-growing trees with the swamp type of roots, and Holland has the ideal moisture and labor conditions for growing young evergreens from seed and cuttings by the million. Unfortunately, many of these kinds are short-lived. For the most permanent features of an American landscape, we must look toward slower-growing species which generally have a deeper and wider-reaching root system. Every time I go to New York I see suburbanites buying Holland-grown evergreens of species that are sure to get ragged in a dozen years or die. They look so pretty in the auction rooms and by the ferries that it is impossible to resist them, and a man who never bought a tree before will buy an evergreen without knowing its name or caring. Lawson's cypress (*Chamæcyparis Lawsoniana*) must have been created to make all these people happy. It is a fast-growing, Pacific-coast species which the European nurserymen dote on. It has made over sixty varieties for them, including many variegated sorts, and is grown by the million in the Netherlands, where labor is cheap. These cypresses may last a few years on the surburban lawn, or a winter in tubs or hotel window-boxes, but they have not forgotten the land they came from. On the Pacific coast, the Japanese current warmed thei ancestors; in Holland, they felt the influence of the Gulf Stream. After a few experiences with a New England winter, they generally give up the ghost. It pays to know what you are buying.

### HOW TO HAVE WHAT YOU WANT

But life would be a poor thing if we never took a chance, and it would be a cruel and sordid thing to look at evergreens only from a utilitarian standpoint. Some conifers are so beautiful—the retinosporas, for instance—that we are bound to have them anyhow, whether they last five years or fifty; and some of us can stand it even if a tree does get somewhat ragged. The important and cheerful fact is that if a man has a good wind-break, he can grow to perfection almost anything within reason, and a good many things he could not reasonably expect. Perhaps the most beautiful and convincing proof of this that has ever been offered the American public is the case of the superb collection of evergreens at Dosoris, Long Island, which was begun by the late Charles A. Dana, editor of the New York *Sun*. In the February number of *Country Life in America* there are pictured seven famous trees of warmer climes, including the big tree of California and the cedar of Lebanon, which are growing at Dosoris behind a wind-break, without any other protection. To my mind, this is the strongest argument of all for having a windbreak, for a home that is merely comfortable is not much of a home, after all. We want beautiful homes, too.

### INDEX TO THE HARDIEST EVERGREENS

| | |
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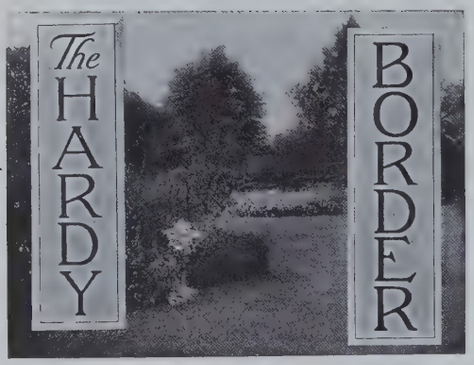
| Cedar, ground | *Juniperus communis*, var. *Canadensis* |
| Cedar, red | *Juniperus Virginiana* |
| Fir, Cilician | *Abies Cilicica* |
| Fir, Nordmann's | *Abies Nordmanniana* |
| Fir, short-bracted | *Abies homolepis* |
| Fir, Veitch's | *Abies Veitchii* |
| Fir, white | *Abies concolor* |
| Hemlock | *Tsuga Canadensis* |
| Juniper, American | *Juniperus communis*, var. *Canadensis* |
| Pine, Japanese garden | *Pinus parviflora* |
| Pine, Japanese umbrella | *Sciadopitys verticillata* |
| Pine, Korean | *Pinus Koraiensis* |
| Pine, lace-bark | *Pinus Bungeana* |
| Pine, Norway | *Pinus resinosa* |
| Pine, pitch | *Pinus rigida* |
| Pine, red | *Pinus resinosa* |
| Pine, small-flowered | *Pinus parviflora* |
| Pine, white | *Pinus Strobus* |
| Pine, white-bark | *Pinus Bungeana* |
| Spruce, Douglas | *Pseudotsuga taxifolia* |
| Spruce, Engelmann's | *Picea Engelmanni* |
| Spruce, Oriental | *Picea orientalis* |
| Spruce, red | *Picea rubra* |
| Spruce, white | *Picea alba* |
| Yew, Japanese | *Taxus cuspidata* |




## Why Hardy Plants Die in Winter, and How to Save Them

A CONTINUOUS blanket of snow that comes early and remains in its original state until the fickleness of spring is past is the ideal winter protection for so-called hardy perennials. Should a February's sun melt it into slush, and a subsequent cold spell convert the slush into ice, many plants, as well as the grass on low spots on the lawn, suffer. In some sections of Maine, Vermont and the Canadas the ideal protection generally exists, and the sweet William, Gaillardias, double-flowering sunflower, the cushion pink (*Armeria maritima*), and shallow-rooted plants like the cardinal flower (*Lobelia cardinalis*) come out of the winter in excellent condition, whereas in less favored situations, such as skirt the southwestern shores of Lake Michigan, they would perish unless artificially protected. Near Chicago the snow seldom remains over a month's time, and in some winters the opportunity for a single sleighride is a rare treat.

Toward spring is the critical time when the most damage is likely to occur from alternate freezing and thawing. If the effect of the sun's rays is excluded the danger is lessened. This applies not only to herbaceous perennials, but also to the wood of climbing roses and the flowering buds of Forsythias, *Prunus triloba*, and the rose-flowered Japanese weeping cherry. Some plants will perish in wet, heavy soils that would winter safely in the same climate if in light, well-drained sod.

In our hardy borders we have plants from all corners of the earth, many coming from sections where conditions of soil and climate are at variance with those of their new home. Examples of such plants requiring special treatment are the rare and beautiful *Stokesia cyanea*, from the sandy pine woods of Georgia, which, while hardy as far north as Boston in congenial situations, is not so with me in our clay loam, unless moisture in winter is kept away from the roots. I carry it safely by placing a hotbed frame over the group, filling it with dry oak leaves and covering with a sash or board shutter. The cardinal flower (*Lobelia cardinalis*) is treated in the same way. While this plant is native, and winters safely in the damp but heavily grassed prairie, where the network of roots of the surrounding grasses holds down those of the cardinal flower, it is very likely to be lifted out of the soil in an open bed. Inverted sods laid over them often bring them through safely.

An open, wet winter often kills the Gaillardia—a native of Texas—but by planting in a well-drained soil, covering with strawy manure or dry leaves, and placing over them a waterproof wooden shutter so slanted as to shed water from the bed, I bring them through in good condition. Often when the crowns appear injured they will break out from the roots and form new plants. It pays to have patience with plants of doubtful hardiness, instead of discarding them if they look weak or ragged. Have a reserve garden for such things and for every plant until you have lived with it a year and know its color, season, and good and bad points. Then you can place it where it will appear to the best advantage.

Don't be in a hurry to cover. A good frost, or even a hard freeze, will not injure them. Let your neighbor cover first, so the field mice, seeking cozy winter quarters, may nest in his coverings, and nibble at his bulbous plants instead of yours. The last of November or even later is early enough.

In the meantime, if possible, gather up the fallen leaves in the woods, preferably oak, and store them under cover. Cut down the eulalias, and eventually use them in place of straw in protecting climbing roses and tender shrubs, or even spreading them over the strawberries. Save them in the spring and store them for another season. It pays to grow some in the kitchen-garden for covering purposes alone, and it is cheaper than buying straw.

If you grow the pennisetum as a border to a canna bed or for decorative purposes, pull them up, roots and all, and use them over any group of early blooming bulbs. They afford good protection, and leave the bed free from litter when removed.

Cut to within a foot of the ground the vines of *Clematis paniculata* or any of the small-flowered forms of clematis to use in protecting climbing roses, laid-down grape-vines and raspberry canes, or to place over a bed of any perennial possessing an evergreen foliage like the perennial poppy.

Cut close to the base all perennials that naturally die back, saving the stiff woody tops, such as the asters, for use over evergreen foliage. Spread short half-rotted manure all over the bed, working it well up to the necks of those retaining their foliage.

Cut, in September, or before the foliage matures, so it will be retained all winter, short boughs of oaks or evergreens and insert the butts between plants of moss-pink (*Phlox subulata*), hardy pinks, or any low-growing evergreen plant. This keeps the sun off, catches the drifting leaves, and affords a light, well-ventilated protection.

Cover early-blooming bulb-beds with eulalias, pennisetum, long straw or hay—or strawy manure with the droppings shaken out. The ground being frozen all winter and up to the time of removal, no manurial leaching may be expected, and this covering comes off with but little litter to remove from among the peeping, brittle points of growth.

For narrow borders of any low-growing evergreen plants or for the fall-produced tips of the Spanish iris, and even for newly planted rows of strawberries, inverted V-shaped troughs placed over them is ample protection.

When spring comes, remove the rougher material and fork in the finer, but in large beds of phlox or any thick-foliage plant, push back out of sight, instead of forking in. It will act as a mulch and help retain the moisture.

If you failed to mulch your border and strawberry bed, do so now. February is a month of alternate freezing and thawing.

Highland Park, Ill. W. C. EGAN.

## The Problem of the Wooden Fence

A HIGH board fence is an eyesore, yet many people are unwilling to cover it with vines, because sooner or later these will cause the wood to decay. The thing to do is to put up chicken wire in front of the fence and grow the vines on the wire.

We bought some strips a few years ago, an inch thick, two or three inches wide, and thirteen feet long, for five cents each; also some two-inch mesh wire netting one or two feet wide at three-quarters of a cent a square foot. Nail the strips to the fence perpendicularly, about six feet apart. To these tack the wire horizontally, leaving six-inch intervals between the widths of wire. The space between the fence and the wire provided by the strips is to allow for the twining of the vines and to give a little air space around the leaves. The intervals between the widths of wire are partly for economy, as the vines will reach from one to the other, making a solid mass of wire unnecessary, and partly for convenience in handling and training, which is difficult to do on an unbroken stretch of wire.

Foliage vines, except English ivy, are good for this purpose. Virginia creeper and ampelopsis are two of the best of these. Vines with abundant foliage make a good background for cosmos, hollyhocks, single dahlias, and other flowers that require support. These can be tied to the wire as they grow, or else flowering annual vines can be planted each year—cypress vine, morning-glory, climbing nasturtiums, or sweet peas for beauty. For use and as a curiosity plant some mixed gourd seeds. Ten cents' worth will provide as many dollars' worth of surprise and entertainment. H. B.

## How to Buy Fertilizers

THE simplest and easiest way for any one to solve the fertilizer problem from the gardening point of view is to buy a bag of ready-mixed fertilizers, and thousands of people do this every year. It is not, however, the intelligent nor the economical way. Economy, however, does not cut as much of a figure in the small home garden as in farm operations or in professional fruit and vegetable gardening. We spend more than fifty million dollars a year on fertilizers, but at a rough guess it is doubtful whether the fertilizers bought for home and garden use would amount to more than a million or two.

If I had only five dollars to spend on my garden this year, I think I should put four of it into fertilizers and one into seeds and plants. The reason why the general run of gardens in this country have only ordinary success is that a person commonly thinks first of the plants that he wants to eat, while the needs of the soil come afterward. Year after year I make the same old mistake of buying a great variety of seeds, most of which are forgotten in the spring rush, or if I get the rare things planted the chances are that they never survive, or drag out a miserable existence. Every single plant in a garden ought to be a success, and the only way to have a successful garden is to have the soil rich. There is a great deal more satisfaction in having a few sturdy plants that are simply bursting with health and vigor than half-starved specimens of rarities and novelties. Any one who reads this magazine ought not to be satisfied with a garden that is simply "good enough." It ought to be a very good garden, and the only way to have a very good garden is to enrich the soil by fertilizers or manures.

While the people will go on buying ready-made fertilizers till the crack of doom, the man who enjoys putting intelligence into his hobbies will find the fertilizer problem a fascinating one. No subject under heaven is more complicated or has more uncertain factors. But these obstacles only add zest to one's enjoyment if one goes at the matter in the right spirit. When Liebig, about 1841, discovered the nine elements of plant food, people jumped to the conclusion that the only thing we should have to do would be to analyze the plant and find out its chemical constitution. This has been done a million times, but the chemical constituents of a plant will never be an absolutely safe guide as to its needs, for a plant often takes up more of a given element than is good for it. The next great hope of humanity that was dashed was the assumption that a chemical analysis of the soil would give an infallible guide for determining what kind of fertilizer to use and how much. The reasons why soil analysis alone can never be a perfect guide are numerous. Neither method alone is entirely reliable, but both, when taken together, furnish valuable hints.

While there are nine elements of plant food, and perhaps more, there are only three of them that are of practical importance to the planter. These are nitrogen, phosphoric acid and potash. These are the elements that are usually deficient whenever crops fail, and they are the costly elements to replace. To these should be added lime, which is also a plant food, but which, so far as its food value is concerned, is nearly always present in sufficient quantities. The great function of lime is to make the soil comfortable for the bacteria that supply nitrogen to the soil. Lime sweetens sour land, and often improves the condition of the soil that is not sour. It is therefore called an "amendment" rather than a food.

The only intelligent way to buy fertilizers is to find out what nitrogen, phosphoric acid, potash and lime are for, what forms they can be purchased in, and the relative value of these for general and special purposes. It is commonly said that nitrogen makes growth, phosphoric acid flowers, and potash fruit. This is going a little too far, because phosphoric acid and potash work together for the formation of flowers and fruit, and the experiment station people are not willing to say that their functions are differentiated in the manner stated above. But there is no question what leafy crops need. All such crops as lettuce and cabbage, of which we eat the leafy parts and not the flowers or seeds, require plenty of nitrogen.

This department will discuss how to buy nitrogen; how to buy phosphoric acid; how to buy potash; lime, when and how to use it; what special crops need; what different kinds of soil need; low-grade versus high-grade fertilizers; barnyard manure; cover crops; and in general the whole subject of making the garden rich and productive. The aim will be to simplify the whole subject as much as possible, and the point of view will be entirely that of the home, fruit, vegetable and flower garden. In my library there must be five or six hundred bulletins on fertilizers, but of course they deal almost entirely with the problems of the professional farmer and horticulturist, and the scale of operations is large. Hidden away in this discouraging mass there are a few pamphlets that will be of genuine help to the gardener. It will pay every one who has a garden to ask the United States Department of Agriculture for printed matter on this subject, and also to write to his State experiment station, specifying exactly what he wants. There is no time like the winter to study the fertilizer question, nor is there any other subject which we can so profitably study. The way to have a better garden next year is to enrich the soil as much as possible.

Articles in this department will be written by unbiased specialists. The fertilizer business is on about the same intellectual and moral plane as patent medicines. This department is in full sympathy with the experiment stations.

### PRACTICAL HINTS FOR FEBRUARY

See what you can do about getting manure for the garden. The value of manure depends almost entirely upon the way it is handled. If you have plenty of barnyard manure, haul it out every day to the garden, if it is practicable, and put it on the snow. The worst thing you can possibly do is to leave it exposed to the rain and never turn it over, because it heats quickly and most of the nitrogen goes away. Whenever you smell ammonia, nitrogen is being wasted. Keep the manure under cover and fork it over every three or four days, or else haul it out every day and put it where you want it to do the most good. Now is the time to manure the lawn or sprinkle bonemeal on the snow.

WILHELM MILLER.

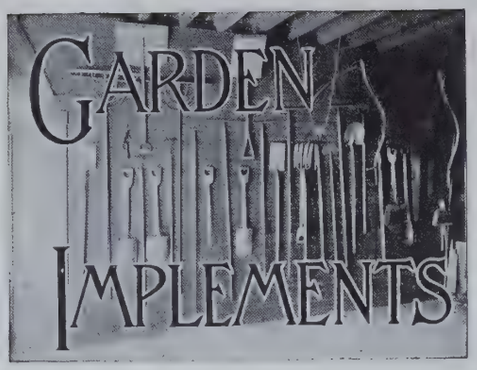
## Greenhouses Costing $100 to $350

THE little greenhouse pictured in the department heading is the property of Mr. E. T. Harvey, of Bond Hill, Ohio. Although Mr. Harvey goes to Cincinnati daily, he manages to care for his greenhouse in a half-hour each morning. The house is 34 feet long and varies in width from 8 to 12 feet. Such a greenhouse can be built for $350. The owner adds still further to its usefulness by using it as a background, around which he has laid out a flower border 2½ feet wide. In the spring this border is filled with Dutch bulbs, and in the summer with greenhouse plants.

A remarkable feature of this small greenhouse is the number of large plants it contains, such as large palms, a *Pittosporum Tobira* measuring more than 5 feet across, loquat, orange and lemon trees bearing fruit, araucarias, azaleas, camellias.

These are moved into the open garden in the summer-time. Three large climbers stay in the house all the year round, a night-blooming cereus, some climbing roses, and a *Monstera deliciosa*.

A greenhouse costing $100 has been built by a resident of Ottawa for use in an entirely different way. His object was simply to raise flowers and vegetables for setting out in his garden, and to protect a few flowering plants in the fall and spring. It is a "lean-to" 15 feet wide and 20 feet long.




## Gardening Without Backache

THE wheel-hoe is the most important garden tool invented within a century; at least, one gardener thinks so—a busy housekeeper, who has undertaken the entire care of the garden as a means of health and pleasure. What can it do? Almost everything that hands, hoes and rakes can accomplish, and does it better and faster. My wheel-hoe has one small wheel and four kinds of attachments—rakes, scrapers, cultivators, and plow. There are more elaborate ones with drill attachments and large wheels—some with two wheels. They cost from $2.25 to $10. This may sound like a high price, but ours has long since paid for itself several times over, because it is such a saver of time and strength, and does its work so well.

The small-wheel kinds are best adapted for soil that is in fairly good condition, but the large wheel is better for rough land, because it rides over obstructions more easily.

The wheels make it possible to push the tool in a series of jerks—drawing it back every few feet for a fresh start; this will not be found necessary in light, loose soil, or for shallow cultivation.

The most expensive attachment is the drill, and this is invaluable to the market-gardener and to the country gentleman, or to any one who has a large garden, especially if the rows are long and only one kind of plant is grown in a row. In the small home garden, however, where many kinds are grown, and in short rows, the expense of a drill may be saved.

The scrapers are excellent for nipping off a fresh crop of young weeds, keeping the paths clean, or for shallow cultivation, but in our experience the plow has been the most useful of all the attachments, though we have nothing against the others; they are useful and satisfactory, but the plow prepares the trenches for all but the shallow-planted seed, covers the seed after it is planted, does all the close cultivating and a good part of the general cultivating between rows, and last, but not least, it is in constant use as an edger for the beds and vegetable rows; more than one washout has been prevented in our garden by keeping the crops ridged up by the indispensable wheel-hoe.

My ancient and orthodox hoes stand rusting in a corner of the barn. Even the push-hoe, once a prime favorite, and the ever-useful rake, are taking a rest, for the wheel-hoe replaces them all, and, besides that, does work which they never pretended or attempted to do. My memory is still sore with thoughts of the bone-racking motion of the primeval hoe and the see-saw of the old-time rake.

Think of the difference between that and taking a stroll between your rows of vegetables, pushing that light-built, easy-running gem of a tool—the wheel-hoe! The only time mine has been really hard to work was when I tried to plow too deep, or run it up-hill or turn tough soil; although this work was hard to do, it would have been impossible with any other hand-tool.

IDA M. ANGELL.

## Flowering Trees and Shrubs

EIGHT SHOWY KINDS THAT CAN BE TRANSPLANTED FROM THE WILD IN FEBRUARY

FEBRUARY is an excellent month for transplanting flowering trees and shrubs from the wild into home grounds, especially if the January thaw has bared the ground and the air thrills with the promise of spring. The trees are dormant, their roots packed tight in frozen earth. It is harder digging, but you get a better ball of roots.

Certain flowering trees among our native species are as beautiful as any exotics obtainable from a nurseryman. In fact, all the best ones are sold by nurserymen. Where these trees are common there can be no objection to digging them up to take home. And these trees are always dearer to the family than trees purchased from a full purse by proxy.

I suggest eight native trees for transplanting to the home grounds this month. Go to the woods and locate a full-grown tree. Bark, shape, hanging seeds, leaves on the ground, or the situation of a tree may enable you to recognize it in winter. The winter bud is the best means of identification. Next best is the arrangement of buds, whether opposite or alternate. A twig from the old tree will enable you to find saplings of the same species. The buds are exactly alike. First comes the problem of selection. The younger a tree is the safer is its transplanting. Choose shapely young specimens that grow in open spaces. Their roots are not entangled with those of older trees. They have had sun and air. Their buds are large. They will make a quick, vigorous start, for their twigs are stored with food. Their bark is thicker; they are hardier than saplings in crowded places. Tap-rooted trees are hard to dig and hard to move. Fibrous-rooted ones are easier, for they are shallower and have a close grip on the soil. Trees growing in clay loam are more successfully transplanted than those in sandy soil, for clay sticks and sand falls away. The second problem is to dig a sapling so as to save the highest percentage of its fibrous roots and to keep these from exposure to the air. In February, careful digging will usually turn out a solid ball of earth. This may be wrapped in a gunnysack to hold it together on the home trip.

The last problem is to set out the tree in the hole previously dug to receive it. It should be solidly packed with soil all around and under the ball of earth. It should have its old level—no lower, no higher. The top must be pruned to offset the loss of roots. No watering is necessary.

In short, the philosophy of successful transplanting of deciduous trees is that the small feeding roots should be kept in ignorance of the change that is going on.

Every garden needs a flowering dogwood, with its snow of white blossoms in spring. It should be planted in the border of an open lawn, but overtopped behind by large trees, because it has no foliage of its own at flowering time to make a background for the blossoms. The price of such a beautiful tree is careful transplanting and patience with its slow growth.

The tulip tree is another particular tree. Its roots are fleshy and easily injured. To get a young sapling home without bruising the roots and unduly jarring the earth ball requires patience and intelligence.

The hobble-bush, or wayfaring tree of America, bears white blossoms in spring in a flat cluster, the outer flowers of which are large and showy, like the snowball's. The shrubby viburnum loops down its slender stems and strikes root at the joints. One of these offsets will grow well and brighten with its scarlet berries a moist and shaded corner of the garden.

The pink-flowered crab-apple is beautiful in bloom, and its fragrance is spicy and delicate. The native hawthorns should have at least one representative in every garden for its white blossoms, abundant showy fruit, and picturesque, angular, and thorn-set branches. The shad-bush, or Juneberry, will as readily light up your yard with its cloud of early white bloom as it does the awakening roadside. The crab-apples, hawthorns, and Juneberries may be successfully transplanted from the wild into ordinary garden loam without taking extra care.

The tree "pussy" grows on a bog willow (*Salix discolor*). Cut twigs this month and keep them in water. By the time you are ready to discard them as bouquets the twigs will be well rooted, and by setting them in moist soil you will soon have pussy willow trees.

The witch-hazel is the last in the yearly procession of flowering trees. It blooms in October and ripens its last-year's seeds at the same time. The yellow flowers are delicately fragrant, and, though small, make a fair show because of their abundance. The explosive pods furnish much amusement.

JULIA E. ROGERS.

## The Famous Georgia Collards

THE collard is the best hot-climate plant of the cabbage family for greens. This is a good thing to know, for the cabbage is essentially a cold-climate vegetable, and few of its forms will do their best in hot weather. The collard does this at the expense of forming a compact, self-blanching "head." Instead of having a broad, well-rounded leaf, like a cabbage, it has a narrow, deeply lobed leaf, and these leaves are arranged in a characteristic rosette. The tender young leaves below the top are cut off and eaten, and the plant grows up to a height of two or three feet, forming new rosettes above while being robbed of its leaves below. Collards are to the South what kale is to the North.

There are two varieties—the European and the Georgian. The European is called rosette colewort, green rosette colewort, or simply collard, and, although capable of forming a head, it is generally cut for greens. Unlike the Georgia collard, it grows only eight or ten inches high. The leaves are crimped, rounded, and deeply hollowed or spoon-shaped. If sown in early spring the crop is ready in August, and if left later the plants make heads, but there is not much point in doing this, as cabbages make better heads. Consequently, the thing to do in Europe is to sow the seeds in early summer, in order to have greens in late autumn, when greens are scarce.

It would be interesting to know when and where the Georgia collard originated, who developed it, and how. As far south as the orange belt it is customary to sow seeds in February or March, so that the crop will be ready before drought sets in. In the middle South, where collards are most popular, they are often started in July or August for autumn greens. When the young plants are transplanted to their final positions they should stand about three feet apart, in rows three and a half to four feet distant. The cultivation is the same as for cabbage.

Professor Bailey says that young cabbage plants are sometimes eaten as greens under the name of collards, and that cabbage seeds are sown for this specific purpose.

It is not likely that collards will become popular in the North, as kale is common and cheap and better adapted to a cold climate.

H. R. C.

## The Cultivation of Collards

THE collard, to the rank and file of Georgia Crackers, is what the potato is to the Irishman, and a dish of collard greens is a *sine qua non* of the dinner of the farm laborer, black or white. The collard is an accommodating vegetable, and will grow and thrive under conditions which would cause any self-respecting cabbage to hang its head and wither of disgust. In the gardens it is planted in the early spring, and in a little while the first greens may be had by thinning in the rows. Then begins the process known as "cropping"—*i. e.*, the gathering of the under leaves, and from then on indefinitely "cropped greens" are a daily food. The more the collard is cropped the taller grows its stem, and it is nothing unusual to see straggling rows of stems some four feet high, crowned at the top with a rosette of dark-green leaves, and with brave little sprouts putting out up its entire length where the leaves have been taken off for cooking. They live all through the summer, grow delightfully tender and juicy under Jack Frost's attentions, and then in February go to seed along with those which have been sown in the fall for the special purpose of making seed for sale to the dealers.

As a side crop collard seed is profitable, though, of course, the market for the output is limited. The preparation of the soil for collards does not conflict with any other plantation work. The five-acre field which the picture shows in bloom was sown in oats in February of 1903 and made a good crop which was cut in May. The ground was then broken, broadcasted, and sown thickly in peas in three-foot drills. The pea-vines were cut about the middle of September and gave a fine yield of hay. The field was then broadcasted again, laid off in four-foot rows, heavily fertilized, and then set with the collard plants which had been grown from seed planted in a garden spot some six weeks before, the time from the cutting of the pea-vines to the transplanting of the collards being only about six weeks. Their cultivations consisted of two plowings at intervals through the fall and winter, and the seed will be ready for gathering by the latter part of May, when cotton will then be planted after them, thus making four crops in less than two years on one plot of land.

The first Georgia-grown collard seed, some thirty years ago, sold to northern dealers for fifty cents a pound. This, when from two to five hundred pounds were gathered from an acre of ground, was a brilliant investment from that astute man—a transplanted Yankee—who inaugurated the industry. There are a great many now who grow the seed, and the price ranges about twenty cents, but there is a good profit even in that.

Cairo, Ga. MRS. HENRY WIGHT.

## The Southern Gardener's Reminder

PLANT raspberries, strawberries, blackberries, pears, and apples

Plant sweet peas—the earlier they can start the better they will be.

Vegetables which may be planted in the latitude of Richmond. Sow in hotbeds: cabbage, cauliflower, beets, lettuce, onions, radishes, egg-plant, peppers, and tomatoes.

In open ground, last of month, beets, carrots, celery, kale, parsley, radishes, onion sets, horse-radishes, and hardy lettuce plants.

Latitude of Atlanta. Sow in hotbeds: egg-plants and peppers.

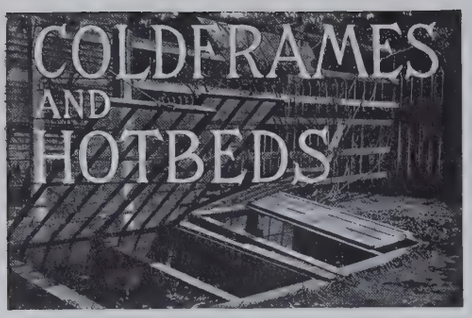
In coldframes: cabbage, broccoli, cauliflower, endive, Kohlrabi, lettuce, celery, parsley, and cress.

Outdoors: early potatoes, early English peas, carrots, beets, leeks, mustard, early radishes, and turnips. Set out cabbage plants started in November.

45. A mammy "crappin' greens." Collards in flower

46. Gathering collard seeds

These cuts should have been cropped differently so as to bring out more detail




## What Coldframes Are Good For and How to Make Them

EVERY well-regulated family ought to have at least one coldframe and one hotbed. A coldframe differs from a hotbed in having no fermenting manure to supply heat, and in being used chiefly for protecting, over the winter, plants that could not live outdoors, such as tea-roses, while a hotbed is used chiefly to get fresh vegetables a month or more earlier in the spring. Both are cheaper than greenhouses, and both have other uses than those mentioned above.

For instance, coldframes can be used to lengthen the season of fresh vegetables both in fall and spring, though, as a general thing, they cannot be expected to yield a sufficient variety and quantity all winter as hotbeds can, because the temperature in a coldframe during the winter is too low to encourage growth. However, it is quite possible to have fresh spinach from coldframes all winter if it is started early enough to be in its prime by November. So grown, it attains a quality superior to any grown outdoors. Lettuce and radishes also can be had from coldframes throughout the winter, though, naturally, the product is better and more abundant in the months that have more hours of sunshine than December and January. The coldframe also fulfils the same function as the hotbed in starting vegetables in early spring that are to be transplanted to the open ground as soon as the danger of frost is past, though a coldframe will ordinarily enable one to get fresh vegetables in this way only a fortnight earlier, while a hotbed would gain a full month. Moreover, coldframes furnish the best way of growing violets, pansies, English daisies, and the polyanthus primrose, all of which would usually survive the northern winters out of doors and bloom in May. In coldframes, they will bloom for a month or more any time from February to April. Again, foxgloves and larkspurs, though quite hardy and easy to grow from seed sown outdoors in spring, produce far better results if started in September, kept over winter in coldframes, and planted outdoors in spring. There are a great many choice plants that are not quite hardy and do not need to grow at all during winter, but do require some light or they will become weak and spindling. The coldframe is better for storing such plants than the cellar. When a coldframe is made deep enough to store rhododendrons, azaleas, star jessamines, and other plants, three or four feet high, it is called a pit.

A coldframe may cost anywhere from nothing to fifteen dollars. If one does not care about looks, a loosely thrown together framework, such as is used in the field and removed, leaving the plants to mature where they started, will be found useful for some things, but the best thing is to have a permanent structure which is stoned, bricked, and painted. One that will answer every purpose is nothing more than a topless and bottomless box with a slope of a few inches to the front, which must face the south or southeast. Set it where there will be a fence or building to protect from north winds. Fit the top with a sash which can be lifted for airing and watering; see that the soil is rich and mellow enough for a garden bed; bank up the outside, and you will be ready to sow the seeds of joy for yourself and of envy for your neighbors.

If you do not wish to attempt anything more elaborate than the starting of a few vegetables and flowers in the spring for extra early bearing, you need not bother with the sash, but in its place use a piece of cloth—any material that will keep out cold—fastened to a framework made of inch-thick strips of common pine.

Strictly speaking, a coldframe is a structure accommodating four sashes each 3 x 6 feet, the cost being about $15. They can be bought ready-made and shipped any distance.

If your frame is to be used simply for wintering dormant plants, start your seeds in the summer or fall, long enough ahead for the plants to become fair sized before transplanting to the frame. In the latitude of New York, the middle of September is early enough for cabbage and lettuce, as any earlier sowing tends to make them go to seed. By about November 1st, your seedlings should be ready for the frame, but do not cover them with sashes until there is danger of freezing, and even then the sashes need not be used in the daytime if there is bright sunshine. In fact, the raising of the sash two or three inches for ventilation during the day keeps the plants from becoming too tender. As the weather becomes colder—10° or less above zero—the glass must be covered at night with carpet, boards, straw, or other protective material. If the plants have become frozen in the frames, this extra protection may be left day and night in case of two or three days of severe cold. You may apply the same principle to the removal of snow—if the plants are not frozen. When snow falls, it must be cleared off, for if left a number of days the plants will become tender.

If the temperature inside the frame is from 25° to 32°, the plants will remain dormant. Transplant to open ground when spring is settled.

But, if you prefer to use your frame for starting extra early spring-sown plants, to gain two weeks in the outdoor season, plant your seed four weeks ahead of outdoor planting. Radishes, parsley, beets, and similar vegetables must be planted about March 1st in the neighborhood of New York, and set in the open ground about April 15th or May 1st. A 3 x 6 sash will accommodate about 400 lettuce plants, which should stand about two by three inches apart until transplanted outdoors.

If you have to be very economical, build some extra frames without sashes and fill them during the winter with leaves or straw to keep the ground unfrozen. On March 1st, set in some of the lettuce plants—fifty to a sash. Transfer the glass from any frame which no longer needs it. Allow the plants air and rain in generous quantities and you will have lettuce two weeks ahead of the outdoor season. When your lettuce comes out in May, plant a half-dozen cucumber seeds in each sash. Keep the glass on at night until the middle of June, when the finished article will be ready to reflect credit on your table.

Don't forget to provide yourself with small shallow boxes for all seedlings; you will find them more convenient and easier to handle than if raised directly in the frame.

When properly treated, plants which are wintered in coldframes will become so hardened that they will stand setting out in the spring long before the seedlings from spring-sown seed. Cabbage, cauliflower, and lettuce are almost hardy anyhow, and several degrees of frost do not hurt them.

For these vegetables, coldframes are much less trouble than hotbeds, and very little later if closed at night and covered with mats.

IDA M. ANGELL.

## A New Reason Why Roses Should Be Ordered Early

TEN years ago everybody used to order roses in May; now, to get the best stock, they send in their orders in February or even as early as January, stating the date they wish to have them delivered. An immense new business has started up in the last few years, called the "advance order" or "reserve order" business. The up-to-date nurseryman now has an "advance-order house" in which he places the plants for future delivery as soon as they are ordered. Each lot has attached to it a conspicuous card, stating whom the plants are for and when they are to go. This is a vast improvement on the old-fashioned method of ordering at the last minute, and as a result receiving the tag ends of the stock, or, worse yet, getting an inferior or different variety because the supply has run out.

The March number of *Country Life in America* will contain an elaborate ten-page article on "How to Grow Roses."

Our best customer in this issue has the ... They are distinctly below the general ...

# VAUGHAN'S PANSIES for 1905

¶ The worth of our Pansy seed is best known to the professional florists: probably more than half of the American florists sow Vaughan's seeds. Our "INTERNATIONAL MIXTURE" is the favorite. It is based on the preference of American pansy lovers for the greatest possible variety in unique colorings, with the largest flowers, thick petaled and of good form. Every solid color is represented. There are also all possible variations of each one of these. The Whites have all possible variations of stripes, veinings, and shadings. The same is true of the Yellows, Purples, Browns, Reds, and other distinct shades. There are also many blendings of Pink, Mahogany, Fire-Colored Bronze-Gold, etc.

*Newer Types of Giant Pansies:*

**Psyche,** Violet, curled.
**Bridesmaid,** Appleblossom color.
**Red Riding Hood,** new large red.
**Giant Cream,** first of this shade.
**Giant Dark Purple,** very distinct.
**Orchid Flowered,** novel light colors.

*Packets of any of the above with our complete Catalogue for 1905 for 15 cents.*

***A GREAT RECORD. Vaughan's International Pansy Mixture was awarded***

**A Medal at the World's Fair in Chicago in 1893**
**A Medal at the Trans-Mississippi Exposition in Omaha in 1898**
**A Medal at the Pan-American Exposition in Buffalo in 1901**

*SOME HAVE WRITTEN:*

FILLMORE CO., MINN. — The Giant Pansy Seed I got of you last year was the largest and most superb blooms ever grown here. I sold large quantities of blooms for Decoration Day and could not supply the demand. I grow Flower and Vegetable plants for the market and deal with three or four prominent firms for seeds, but they don't compare very favorably with the varieties I get from you.

T. JENNINGS.

LA SALLE CO., ILL.—From your Giant Pansies last year I had the handsomest and most prolific bed of Pansies in this town.

REV. G. N. BALLENTINE.

MONTGOMERY, OHIO. — The Flower and Vegetable Seeds ordered did exceedingly well this Summer. The International Mixture of Pansies was exceedingly fine.

NOAH BUETHLEY.

FOR 1905. While we have added for fifteen years every variety of the Giant pansies that has been offered to the public, this season we are increasing still more the percentage of the newer kinds of Giant flowers, making it *better than ever.*

A MUCHA PANSY POSTER. Delighted with the opportunity to use this favorite Parisian flower in his Art, M. Mucha, the famous Paris Artist, has supplied us an ideal cover design, making our catalogue for 1905 one of the most artistic as well as the most complete we have ever issued. We mail the International Pansy Mixture with the 1905 Catalogue, Pkt. of 250 seeds, for 25 cts., or 5 Pkts., 1250 seeds, for only $1.00, with Treatise, "How to Grow Pansies," free.

Address **Vaughan's Seed Store** 84 and 86 Randolph St., CHICAGO
14 Barclay St., NEW YORK

We design, erect, heat, and ventilate Greenhouses, Conservatories, Palmhouses, and also manufacture HOTBED SASH and Frames. Send four cents postage each for our beautifully illustrated catalogues.

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*Horticultural Architects and Builders*
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ROYAL PALM NURSERIES — REASONER BROTHERS — ONECO, FLORIDA, U.S.A. — WILL RECOMMEND

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Like plants?
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We are **HEADQUARTERS** for Palms, Ferns,
Decorative Plants
of all sorts, Vines, both hardy and tender, Aquatics, Conifers, Tropical and Hardy Fruit trees, Economic plants and trees, Bamboos and Grasses, Flowering plants and Shrubs, Trees, etc., in the greatest variety in America. Send for our large interesting catalogue, nicely illustrated; with prices very moderate; no agents. We have thousands of **satisfied customers** in America, from Oregon to Maine; Mexico to Canada; Minnesota to Florida, and many in the tropics around the World from Philippines to the West Indies. We ship everywhere every week in the year **SAFELY!** Large plants by mail; better by express or freight at lowest rates. Make a note of our address and ask for a catalogue and testimonials.
**REASONER BROS., Oneco, Florida**
P. S.—Our stock, naturally grown here in sandy soil is far better rooted, and more vigorous than hot-house plants, for **ANY** and **ALL** climates.

GENUINE KENTUCKY Blue Grass SEED
FROM THE BLUE GRASS CAPITOL
Makes the most beautiful lawns and desirable pastures. Our **"Lexington"** brand is from fancy selected crops, fully matured, grown on the best blue grass lands, carefully cured and cleaned by most modern processes. Each bag fully tested.
Enough to sow 20x30 feet, postpaid . . . $0.40
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**Special Prices on Larger Quantities**
**Flower and Garden Seeds Catalog—FREE**
DAVID C. FROST (Est. 1884), 224 W. Short Street, Lexington, Ky.

Japanese and Bermuda Lilies

We are headquarters for lilies which we import direct from Japan and Bermuda and grow extensively at all seasons. They are the finest obtainable. We also grow

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Your garden will not be complete without some of the above. Let us tell you about Japanese Gardens. Our Japanese landscape expert will be glad to give you the requisite information for making one of these unique gardens. Sketches and estimates furnished.

HINODE FLORIST CO., WHITESTONE, LONG ISLAND, N.Y.
——TELEPHONE CONNECTION——

## Cheap Spraying Outfits for Home Gardens

IT is impossible to have first-class vegetables and fruit without spraying. Most people are afraid of the subject, because they think they must learn all about the insects and a lot of hard Latin names.

The main things to know are these: (1) the chief enemies; (2) whether they are chewing or sucking insects; (3) when they are most defenseless. With the exception of those species that feed below the ground or are concealed in the plant tissues, insects are nearly all fairly easy to attack. They belong to two general classes: (1) those that suck the juices through their tubelike beaks, which are generally held close to the lower side of the abdomen, and (2) those that bite off little pieces with movable jaws. Squash bugs and plant lice are examples of the former; grasshoppers and caterpillars, of the latter.

For the former, entomologists recommend solutions, dusts, oils, etc., which suffocate these creatures by stopping up their breathing-holes (which are always in the sides of an insect, not on the head); for the latter, Paris green or other poisons, which are taken into the stomach. Tons of Paris green are wasted every year on sucking insects.

The majority of plant diseases either conceal their vegetative parts beneath the tissues of the plant they grow upon, as black knot of the apples; or, like the powdery mildew of the gooseberry, spread these parts mainly upon the outside of the plant tissues which they enter only by means of suckers (haustoria). A hand lens will show which is which. In general there is no remedy for the former after they once gain entrance, though sprays are recommended as preventives; the latter are usually combatted with sprays and powders.

Four dollars will buy an excellent pump and hose suitable for home use. This outfit consists of a portable, double-acting force pump, attached to a hand bucket, with hose and nozzle for spraying.

If you need a larger apparatus, nothing is more satisfactory than the barrel form, which costs about ten dollars complete, with ten feet of hose and a nozzle.

Unquestionably these are two of the very best spraying outfits made; and with different nozzles, which cost only a trifle, you can use them for every domestic purpose, such as washing windows and wagons, for whitewashing, and even for painting. M. G. K.

POT-GROWN GRAPEVINE

# Trained Fruit Trees

We have not the least hesitation in saying that our Bearing Trained Fruit Trees have been more than satisfactory to everybody who has given them a trial. We have quantities of Apples, Pears, Apricots, Cherries, Peaches, Plums, and Nectarines, in all forms and varieties.

# English Pot-Grown Grape Vines

A fine lot in the following varieties: Black Hamburg, Muscat Hamburg, Muscat of Alexander, Black Alicante, Cannon Hall Muscat, Gros Colmar, Buckland Sweetwater, Foster's White Seedling, Lady Down's Seedling, and many other well-known kinds. ¶ We have a prime stock of Pot-grown Cherries, Nectarines, Apricots, Peaches, in all leading varieties. Other fruits are listed in our catalogue.

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**BLUE SPRUCE (TRUE).** Our Stock consists of several thousand specimens, in all sizes, from 10 inches to 10 feet.

**JAPANESE MAPLES.** The true Blue-Leaf and Golden varieties.

**EVERGREENS and CONIFERS.** Suitable to plant now, in any part of the country. All our stock is dug with a large ball of earth filled with roots, and wrapped with burlap.

**SHADE TREES and FLOWERING SHRUBS** that will grow everywhere; a variety adapted to any locality.

**OLD-FASHIONED FLOWERS.** The largest collection ever held in America is now growing in our Nurseries. An idea of its extent can be had by reviewing our Hardy Plant Catalogue.

**DOGWOOD.** Red and White Flowered. **PAEONIAS.** Tree and Herbaceous.

**HARDY RHODODENDRONS** we have in large quantities.

**ROSES.** In our Nurseries and storehouses at this time are upwards of 100,000, in all the leading varieties: Hybrids, Teas, Bourbon, Penzance Sweet Briars, Monthly or China, Climbing, Pillar, and Rambling kinds, and the New Baby Crimson Rambler.

**BULBS and ROOTS.** Spring, Summer, and Autumn.

BEARING TRAINED FRUIT TREE

WE TAKE PLEASURE in inviting readers of *The Garden Magazine* who intend purchasing stock for beautifying their grounds this Spring, to visit our Nurseries, when we will be pleased to give any information as to the variety of stock necessary for any locality.

*See our Catalogues for prices and particulars* **BOBBINK & ATKINS,** Nurserymen and Florists, **RUTHERFORD, N. J.**

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# HOW TO

## Make a Flower Garden

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TO SELECT suitable plants and arrange them for proper effect near the house is the most difficult of all landscape planting, since style of architecture, light and shade, and other conditions call for individuality of design.

OUR WIDE EXPERIENCE and observation will set the matter right at nominal expense, and our choice plants will bring the desired results.

We have the finest varieties of Evergreens, Shade Trees, Flowering Trees and Shrubs, Old-fashioned Flowers and Roses. With our XXX Everblooming Roses you may have abundant bloom from June to November.

SEEING THE SUPERIORITY of our stock, a customer recently gave us an order for nearly $4,000 for delivery next Spring. Visitors welcome. Catalogue free.

**S. G. HARRIS, M. S., Tarrytown, N. Y.**

**LUTHER BURBANK'S DAHLIA SEED** Dahlias can be raised from seed and will **bloom the first year.** The seed we offer, if sown early, will bloom profusely all Fall. The seeds germinate as easily and certainly as Zinnias, and from the very start are strong, stocky little plants. Transplant them carefully, as their growth demands, and keep the soil moderately moist. When all danger from frost is over, plant them in the border in the garden, and from then out they will grow as well as if from roots.

The seed we offer is of Luther Burbank's own saving, and he writes: "This seed will produce a greater proportion of large, clear, bright-colored, perfect double flowers than any ever before offered; 90 per cent. of good flowers can be expected." The colors are salmon, light and dark crimson, deepest purple to maroon and almost black, light straw, deepest yellow and a few white, mostly of the Cactus-type. **Pkt.** (50 seeds), **30c.; 3 for 75c.,** with Vaughan's 1905 Catalogue.

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## SWEET CORN

is ten days to two weeks earlier than any other variety. The tenderest, juiciest, sweetest and most productive sweet corn ever grown. Suited to all soils and climates. Every private and market garden should have it.

**For 16c in stamps** we will mail you 300 seeds of PEEP O'DAY Sweet Corn—enough for sixty hills; also our 1905 Pictured Catalogue of Northern Grown Farm, Vegetable and Flower Seeds; also "Seed Truth," an attractive book—tells how to buy seeds to best advantage.

Or we will mail FREE our 1905 Pictured Catalogue and "Seed Truth," as described above.

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You can make more money if you plant intelligently. Write and tell us about your soil. We'll send you our **Free Descriptive Book.** Over 100 varieties.

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## The Very Earliest Flowers

MARCH is the great month for starting flower seeds indoors, but there are certain days in February that stir one's blood with a desire for gardening, and then is the time to saw up an old soap-box or two and start some seeds of kinds that are slow to germinate or require an extra long season of growth. For the special purposes mentioned in "The Gardener's Reminder" (page 9), the following are highly desirable:

GOOD THINGS TO START NOW

| | |
|---|---|
| Tuberous begonias | Variegated periwinkle |
| Dusty millers | Single dahlias |
| Cigar plant (Cuphea) | Verbenas |
| Ten weeks' stock | Ageratum |
| Scarlet sage or salvia | Canterbury bells |
| Tufted pansies | *Cobœa scandens* |
| | Cosmos |

These may all be raised from seed started in a sunny window in February. Have you a south or southeast window in any of your living-rooms or in a light cellar?

If so, you may raise enough plants to beautify a large garden. A greenhouse is not essential for this purpose.

The first things to procure for the starting of these seeds are some "flats" or shallow boxes. These should be about three inches deep and of a length and breadth to be convenient to handle. They must have cracks or holes to provide drainage, which should be further insured by pebbles or similar material in the bottom of the box.

Next get the soil. This should be good, rich garden loam. Fresh manure need not be added, as it may cause too quick a growth. The object is to have the plants strong and stocky. Sift the soil, so it will be porous, not hard and lumpy. Now you are ready to sow your seed. The ordinary-sized ones should be planted to a depth equal to four times their own diameter. The very small seeds should be hardly more than pressed into the soil, and the "powdery" ones should have a pane of glass placed over the box to prevent their drying out altogether. Make the soil moist and press with a board after the seeds are planted, or they may dry out.

During growth keep the soil moist by means of a rubber bulb sprayer; any other kind of watering is likely to wash the seeds out. Try to strike a happy medium in the amount of moisture, for too much will give a chance to fungi, which cause the seedlings to damp off, and too little will interfere with their sprouting at all.

Next month there will be given in this department full directions concerning temperatures, transplanting, and later treatment.

A. R. M.

¶ Plants sometimes need to be washed as well as fed. The roots may be moist, and the leaves dust-covered. How easy to bathe them if you have a

## CALDWELL TANK AND TOWER

*Our catalogue gives full information*

W. E. CALDWELL CO., LOUISVILLE, KY.

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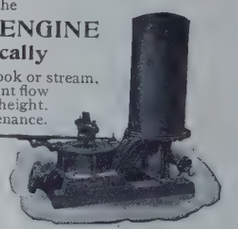
can be had by installing the

**RIFE HYDRAULIC ENGINE**
**Operated Automatically**

by the power furnished by any brook or stream, however small, and produces a constant flow in your house at any distance or any height. Absolutely no cost of maintenance. Requires no attention. We make a specialty of equipping country places with a complete water-works system, extending to stable, garden, greenhouses, etc. 4,500 in successful operation. Catalogue and estimates on request.



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## GARDEN SPRAYERS

Healthy trees, shrubs, vegetables, and fruit are possible only when freed from insects by using the

## Auto-Spray

the simplest, most economical and improved compressed air sprayer. Requires no continuous pumping as do the knapsack sprayers and bucket pump. A few strokes of the plunger compresses enough air to cover a quarter acre of closely planted flowers, fruits or vegetables. Capacity four gallons. We manufacture the largest line of

HAND AND POWER SPRAYERS

in America. *Outfits specially adapted for destroying the San Jose Scale. Send for catalogue describing all kinds.*

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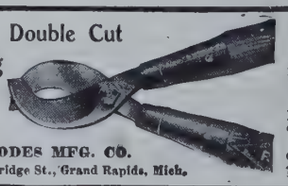

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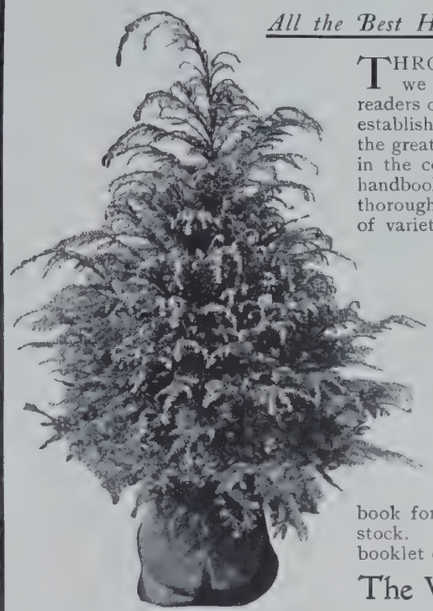

A HEMLOCK SPRUCE
from our Nursery rows

THROUGH our handbook for 1905 we should like to introduce the readers of this new magazine to the old established Glenwood Nurseries where the greatest assortment of nursery stock in the country is grown. This unique handbook is handsomely illustrated and thoroughly descriptive of the hundreds of varieties of

**Evergreens and Deciduous Trees and Shrubs**

that we offer. It tells the time of flowering, the height at maturity, the soil requirements, the range of hardiness, and suggests uses for each plant. It is more than a catalogue of sizes and prices; it is a handbook for all who intend using nursery stock. Write for it and ask for our booklet on "Landscape Gardening."

**The WM. H. MOON CO.**
MORRISVILLE, PA.
Philadelphia Office, 6116 Stephen Girard Bldg.

# "Beautiful Grounds"

## A MANUAL

Containing
Practical
Information
and Suggestion

## SENT FREE

IT contains a department of Information and Suggestion which deals exhaustively with the beautifying of homes by the use of trees, shrubs, and flowers—and will be a great help to those who contemplate doing any work along this line. We tell you just what to do and what not to do, with directions for planting and caring for the stock you buy. You should send for this Manual if only for this one department. In the section regarding landscape department, we give some very valuable hints to people who are thinking of buying a place.

IT tells of our History: Since the establishment of the Nursery nearly half a century ago by P. S. PETERSON there has been a steady increase in the growth of the business until now the plant covers 480 acres. We have as rich a *variety* of soils for the gradual fibrous rooting as can be found in any block of land.

IT also tells of our great assortment of Nursery Stock and our unequaled shipping facilities which enable us to forward stock at short notice and insure your receiving it in fine condition. We have given you above a short list of the subjects treated in our Manual (not all, by far), and we would be pleased to send one to you if you care to send your name and address.

**PETERSON NURSERY,** 1200 West Peterson Ave. **Chicago, Ill.**

PART OF 75 TREES MOVED IN 1902-1903 FOR CLARENCE MACKEY, ESQ.
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Permit the highest development of landscape designing in the shortest time.

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Our aim: To grow all the available species of evergreens *thoroughly adapted* to the vicissitudes of this climate. We offer evergreens up to 45 ft. high, and move them at any time of year. Our movers carry these evergreens horizontally under wires.

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NO garden is complete without a sufficient number of grape vines to supply an abundance of this delicious fruit. For nearly 40 years we have been furnishing high grade vines for this purpose.

¶ We will send ten large vines of the best table varieties, including three red, three white and four black for $1.00 delivered free. *Send for our elegant Illustrated Descriptive Catalogue and Price-list.*

T. S. HUBBARD CO.
*Grape Vine Specialists* Fredonia, N. Y.

"You plant good seed if you buy of Miss White."

# SEEDS

Sent free, my dainty catalogue of the choicest and rarest of beautiful flowers. If you inclose 6c. and addresses of two other flower lovers, I will send you also my Surprise Packet (500 seeds of 20 choice annuals, mixed) and certificate for my 5th Annual **Prize Contest** for flowers grown from it. First prize, $50.00. Catalogue gives particulars. Write me—do it now.

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**WE ALSO OFFER** the best in Carnations, Cannas, Geraniums, and other tender House and Garden plants.

An extensive list of Hardy Perennials for Lawn, Border, and Wild Garden, including Foxglove, Iris, Phlox, etc.

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*Established in 1876*
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# The WINDOW GARDEN

## A Boston Fern with Fronds More Than Eight Feet Long

THE fern shown below is probably a sport from the Boston fern (*Nephrolepis exaltata var. Bostoniensis*), differing from it in having wider fronds. This was sent me without a label by one of the leading plant companies as a premium with a large order in the spring of 1899. It then had three or four small fronds, none more than eight inches in length. I potted the young plant in one-half wood soil, a little well-rotted barn-yard manure, and good garden soil. It grew luxuriantly for three years without change of soil. In the fall of 1902 I took it from the pot and with a sharp carving-knife cut the roots in four parts, carefully separating the fronds. I then gave fresh soil, potting the largest in large tin pail, with

48. A Boston fern with more than 200 fronds, the longest of which measures eight feet four inches

about two inches of broken pots in the bottom. I gave plenty of water when required, which, during the winter, when the house is warm, is almost daily. The house is heated with combination steam and warm air. The fern is placed on a bracket between the two center windows having a southwestern exposure. I do not move the plant in the summer, but by drawing down the shades and closing blinds of all except the eastern window protect it from the strong sunlight in hot weather.

Dushore, Pa. MRS. RUSH J. THOMSON.


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For years we have been striving to show our many friends that we have a superior selection and strains of Flower and Vegetable seeds.

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are known to be true; we have tested them all.

Now we want all who are interested in seeds to have our 1905 Catalogue. **It is new. IT IS UP TO DATE with the latest novelties and specialties.** Before you buy we want you to see it.

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**"Plants and Plans for Beautiful Surroundings"**

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Write and tell us about what you would like, and we will prepare sketch and estimate, free of charge, and submit for your consideration. Our estimate will include the structure, erected complete with heating and ventilation, ready to receive the plants, or if you desire it we will furnish the material only, cut and fitted ready to go together, with complete working drawings for its erection.

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**Surplus Stock** We have a surplus of Rose Bushes, Weigelia, Deutzia, Spiræa, Tree Cranberry, Hydrangea and Barberry. We have also a surplus stock of Carolina Poplar and Lombardy Poplar. Also a surplus of **Apple Trees, Grape Vines** and **Currant Bushes,** particularly the new **Red Cross Currant.** We will be glad to make special pen prices on these items if you desire them in lots of 50, 100, 1,000 or more.

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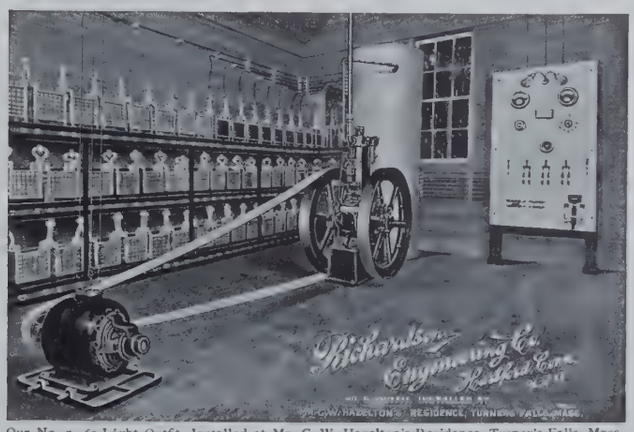

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All our outfits complete in every detail, including storage battery (for light every hour in the 24), and gas, gasoline or steam engine, which can be used for pumping, refrigeration, and other work.

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130 complete electric light outfits, illustrated and described in our 56 page catalogue. Address, **Lighting Dept.**

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## The Garden Beautiful

Many men, and women too, take delight in the cultivation of vegetables, fruits and flowers. They not only make of gardening a recreation and a pleasure, but they also make it a profitable occupation. The back-breaking and time-killing methods of the olden time have been done away with. Cultivation is more than ever a science, and the labor connected with it is now a mere pastime.

# IRON AGE
## Garden Implements

have made the market gardener's life a simple one. With these implements all kinds of garden work can be easily done by hand. For cultivating the amateur gardener will find the **No. 1 Iron Age Double and Single Wheel Hoe** just the tool needed. It has a full equipment of hoes, plows, rakes, etc., and with these various interchangeable parts the work of cultivation can be done quickly and with greater ease than ever before. Although this is a tool designed to accomplish so much, it is very simple and strongly built. It's an implement that has given universal satisfaction wherever used, and it's a decided favorite with all gardeners. The illustration above gives an excellent idea of the application of this tool, and shows the ease of operating. The usefulness of this implement can be further increased by adding at any time either a seed drill attachment or a fertilizer attachment. And these different attachments can be bought just as needed and at small outlay. Only a few minutes are required to make the change from one tool to another.

If you are interested in gardening, and you want to lessen your work and make more money, send for the **IRON AGE BOOK for 1905.**

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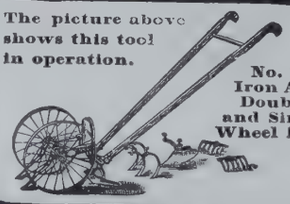
**The picture above shows this tool in operation.**



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Buyers will find a very considerable saving in our prices as compared with those quoted by jobbers.

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First Quality stock, including all the best in the Hybrid Perpetual Class. The Hardy Yellow Roses, Harrisonii, Persian Yellow, and the New Everblooming Yellow, "Soleil d'Or."

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The true everblooming Class of Roses including Killarney (new), Gruss an Teplitz, Mildred Grant, etc.

### MY NEW SEEDLING RAMBLERS

In white, pink, and crimson, and the new dwarf Baby Rambler. Choice double Hollyhocks, Herbaceous Paeonies, and Phlox.

*My catalogue mailed on application*

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Easy to have the

**Earliest and Best Garden**

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## Johnson & Stokes' Seeds

A packet of **Sparks' Earliana Tomato** and a pint of **Peep o' Day Sweet Corn** will give you the lead.

We'll mail them on receipt of **25c,** and also send you our **Garden and Farm Manual,** which tells about other seeds of

**Up-to-date vegetables of choicest sorts**
**New and rare flowers of easiest culture**

If you don't want to order now, send for the Manual (free) and study it so that you will know what you want later on.

**JOHNSON & STOKES**
**Dept. A8, 217-219 Market St.**
**Philadelphia**

## A Successful Home Fruit-Garden

IN spite of the profusion of fruits that can be bought in the markets in California, there is every inducement for each family to grow its own. Home-grown fruit right from the trees is eaten before it loses that perfect delicacy of flavor which it is impossible to get in commercial fruit. There is no thought, either, that what one is eating has been fingered by a dozen dirty hands, or has been thrown into dirty boxes and hauled miles over dust-clouded roads, to lie hours in an open store on a busy street before it comes to the table. Or, if it is winter, there is no shuddering apprehension that the dried peaches have been "tromped" by the feet of the packing-house crew. Even in California, ideal fruit country though it is, there are unavoidable drawbacks to the complete enjoyment of fruit unless one raises it himself.

I know of one family of five at Fresno that supplies much of its own fruit, even on so small a town place as three lots, 75 x 150 feet in all, with no cost but the water to irrigate the trees, and the slight trouble of picking the fruit. From six carefully tended trees they gather a succession of fruits from June to December. First, the apricot bears more than enough to supply the table daily with fresh fruit and delicious ices. What is left over from these uses is canned or made into marmalade, several quarts of each being stored away for the winter. All this from one tree not yet fully grown!

Then the fig-tree yields the first of its three crops for the summer. Fresh figs with sugar and cream are served each morning for breakfast. Much of the fruit cannot be eaten this way, and falls to the ground before it can be picked. These are dried and packed away, or candied, or made into preserves. With short intervals between, two more crops ripen before the summer is gone.

A pear-tree and an almond-tree are just coming into bearing.

Late in December two trees are full of golden oranges, which are picked just about Christmas time. The crop of two large boxes lasts well into February.

The only care required by the trees is irrigation with a garden-hose during the dry summer weather, and pruning once a year. The heavy fall of fig-leaves in the autumn gives a quantity of rich leaf mold which is used as fertilizer.

The owner does all the necessary work on his trees and vines outside the hours of a busy professional life, and considers the quality of the fruit and the pleasure of growing it an ample return for his trouble.

FRENCH STROTHER.

Directory of

# Stock Breeders

Under this heading will appear each month announcements of reliable stock breeders


CAIRNSMUIR FOX TERRIERS

MAJOR G. M. CARNOCHAN

RIVERDALE-ON-HUDSON, NEW YORK CITY, offers one hundred young Fox-terrier dogs and bitches for sale. This is an excellent opportunity to obtain the Cairnsmuir blood at very reasonable prices. All are eligible for registration Prices and pedigrees can be obtained on application. Welsh terriers also for sale.

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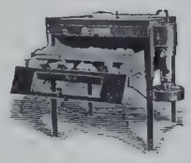
With one of our 120-egg Incubators you can hatch all the Chickens you can use, and sell enough to cover all cost. Now is the time to prepare for early hatches. Don't delay. Send for large illustrated catalogue. It's FREE.



GEM INCUBATOR CO.

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**Bees** Few people realize the interest and profit in keeping bees. My business is to supply bees and Apiarian material. I have prepared a little booklet on bees, giving details of management and the profits to be derived from them. Sent on receipt of 10 cents, including catalog. Bees require little care, increase rapidly, and each hive produces from 30 to 50 lbs. of honey a year.

I. J. STRINGHAM

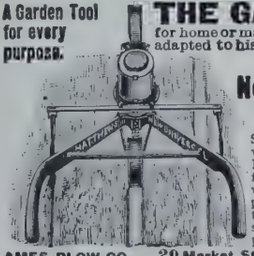
105 PARK PLACE, N. Y. Apiaries, Glen Cove, L. I.

A Garden Tool for every purpose.

THE GARDENER for home or market finds tools best adapted to his work in the line of

Matthews' New Universal

Hand Seeders and Cultivators.



Singly or combined with Hoes, Plows, Rakes, Markers. Send for Free Booklet of valuable information for planting and cultivating the garden and full description of these implements.

AMES PLOW CO., 20 Market Street, Boston, Mass.


# Want Department

A special low rate is made in this department for the convenience of readers to advertise for a gardener, or for gardeners to offer their services.

Advertisements in this department for the March number must reach us by February 1st.


# DO NOT MISS

## The "MARCH GARDENING MANUAL" of

# Country Life in America

This double number will be a sumptuous garden year book, indispensable to every owner of a flower or vegetable garden.

The articles will be practical, timely, and inspiring, and the illustrations will be of surpassing beauty.

120 PAGES 130 PHOTOGRAPHS

*SOME OF THE FEATURES ARE:*

HOW TO GROW HARDY ROSES—16 photographs

THE BEAUTIFUL ESTATE OF MAGNOLIA-on-the-Ashley—13 photographs

BAMBOOS FOR EVERY PLACE AND PURPOSE—13 photographs

THE ART OF WILD GARDENING—12 photographs

THE PLANNING OF A MAZE—7 photographs

THE GARDEN OF SURPRISES—9 photographs

A SEASHORE GARDEN—7 photographs

THE ANDERSON GARDEN OF WELD—16 photographs

A JAPANESE GARDEN IN AMERICA—6 photographs

There will be twenty or thirty other articles that will cover the entire field of gardening, including these:

FIVE SPECIAL PRIZE ARTICLES

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Contains 224 pages with hundreds of illustrations made from photographs, and six full-page colored plates painted from nature especially for this book. *Write for a copy to-day.*

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VEGETABLE, FARM, and FLOWER SEEDS

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I grow in quantity here in cold New England are the best hardy garden sorts, the old reliable kinds that everybody wants for the border or shady corner. Also the best hardy Ferns and Wild Flowers of New England suitable for cultivation. Illustrated catalogue sent on request

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says "Beautify America." Send 10c. for a year's membership in the Flowerlovers' Club and 1 pkt. each of New Japanese Morning Glory, Flowerlovers' Nasturtiums and Mixed Gourds to plant on that bare fence, wall, or other unsightly place. My Little Green Book free.
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have just issued their new **Catalogue for 1905**, designed especially for **Gardeners** and **Owners of Large Estates.** It contains many attractions for buyers of Nursery Stock in quantity. Send us your name, and we will send you the book.

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Our nurseries are located eighteen miles south of Boston. We have rapid transit both north and south. Freight arrives in New York or Boston the next morning after shipment.

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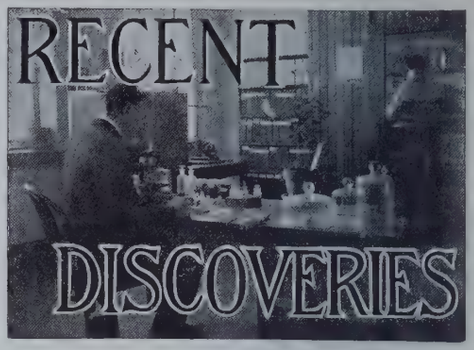


## Inoculating the Soil

THREE or four years ago a great German scientist discovered and patented a way of sending out material for inoculating seeds or soil with the bacteria necessary to enable peas, beans, clover, alfalfa and other legumes to get free nitrogen from the air and thereby add to the richness of the soil, but the experience was a commercial failure, because the bacteria in the scientist's laboratory were fed upon rich food. Dr. Moore, of the United States Department of Agriculture, found that the bacteria fed upon food rich in nitrogen became lazy and would not work hard enough to get nitrogen from the air. He therefore fed the bacteria on food poor in nitrogen, with the result that the United States Department of Agriculture is now sending out to all applicants, free of charge, small packets with full directions for inoculating the seeds or soil. Most of the plants concerned are forage plants, or plants used for green manuring, but it will pay any one who has a garden to write to the Department of Agriculture for material for inoculating garden peas and beans.

## More Enjoyment and Less Work

IN this department we invite suggestions concerning anything connected with the home fruit, flower or vegetable garden. If you have worked them out, so much the better. We want to know the new and unique things that are going on in all parts of the country, and offer a five-dollar bill for the best suggestion that comes to us each month.

This sort of friendly and informal competition is very popular among amateur gardeners in England, and it is to be hoped that Americans are not deficient in imagination and ingenuity in the planning and execution of their gardens. As a sample subject, we would suggest "How to Have More Fun and Less Work in the Garden."

Send all contributions to the "Suggestions Department," THE GARDEN MAGAZINE, 133 East Sixteenth Street, New York, N. Y.

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50 BARCLAY STREET
NEW YORK
COLLECTION VEGETABLE SEEDS.
½ PT. PEAS, EARLY JUNE
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1 PKT. MUSK-MELON, SELECTED STOCK
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COLLECTION, 6 PKTS., POSTPAID, 50c.

VEGETABLE FLOWER

This is a reproduction of the back cover of our superb 1905 catalogue of

VEGETABLE AND FLOWER SEEDS

**Bulbs, Roses, etc.** It is packed full of interest to all who plant We might almost call it a cyclopaedia, although it is not too voluminous to make the contents accessible. It will be mailed free to the readers of *The Garden Magazine*. Write for it.

STUMPP & WALTER COMPANY, 50 BARCLAY ST., NEW YORK
Branch, 404 East 34th Street

**A SUGGESTION:** Send for the attractive collection offered on the above cover. Then you'll be ready to start your garden early

# The Best Roses in America

We are "PIONEER ROSE GROWERS" and have made the "Queen of Flowers" a constant study for more than a generation. As a result, we are now able to offer you one of the most complete assortments obtainable anywhere—the cream of the best varieties, some from each class.

Besides our excellent assortment, it is the splendid QUALITY of

*"C & J" Roses*

that has won for them their reputation. Even the amateur knows that in buying roses, quality counts for much. We grow roses for every possible purpose. If you would like to know just the roses best adapted to your own locality, write us and we will tell you what kinds to get.

This information, together with our new book "*How to Grow Roses*" and our "*New Floral Guide*" (136 pages about the best Roses, and 500 other choice plants for improving home grounds), will be sent free of charge to readers of *The Garden Magazine*. Write to-day.

**THE CONARD & JONES CO., Box 43, West Grove, Pa.**

*"Grand Prize" St. Louis World's Fair, 1904*



PLAN during WINTER MONTHS how to make your garden a spot of BEAUTY and joy through the summer.

**We can supply you in BEST quality:**

**Amaryllis** in all known sorts.
**Begonias** single and double in all colors. Leaf Begonias, etc.
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Herbaceous Perennials, Phloxes, Anemones, etc.
**Roses** of all descriptions, **Rhododendrons, Hydrangeas** *new* and *rare.*
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Write us for *any information whatsoever* in *horticultural line* and we will give it gladly and freely. Send for our Catalogue

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WE HAVE OTHERS TOO

Our 1905 Garden and Floral Guide will tell you about them, and also about the kinds of seeds that produce results. A postal card will bring it FREE.

**JAMES VICK'S SONS, 362 Main St., Rochester, N. Y.**

Puzzle: Find Vaughan's ad. — It's here




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We are headquarters for ORCHIDS. We collect, import, grow, and sell *Orchids* EXCLUSIVELY. We are prepared to stock entire Greenhouses with these plants at moderate prices, and guarantee satisfaction.

OUR ORCHIDS ARE THE BEST AND FINEST THAT CULTURAL SKILL CAN PRODUCE

If you contemplate buying *Orchids* in small or large quantities, we respectfully solicit your orders.

LAGER & HURRELL

*Orchid-growers and Importers*

SUMMIT, NEW JERSEY

TRY THE NEW

## Majestic Tomato

The greatest vegetable novelty of the season. By all odds the largest, finest flavored and most productive in existence. Thousands of our customers who received small trial packages last spring wrote us in the fall that it surpassed all other sorts and produced 100 lbs. to 147 lbs. of fruit to the plant. Many reported single tomatoes weighing 3 lbs. to 5¾ lbs. each. Just think what this kind of a crop would mean on an acre of ground. The fruits are not coarse grained and poor like other large sorts, but are smooth, solid, have few seeds, and are unsurpassed in quality. Of fine shape and beautiful color. Last year the seed sold at 40c. per packet of 100 seeds, but this season we have reduced price to 15 cts., and in addition to this we are offering

*$100.00 IN CASH*

prizes this year for the largest tomato grown

Our large illustrated catalogue describing the above and many other choice novelties will be sent free if you mention this paper.

IOWA SEED CO.,
Des Moines, - Iowa

## NEW GLADIOLUS PRINCEPS

**The Best and Largest Gladiolus in Existence**

IT is not only large, but its blooms are most effective and graceful for use in vases or jardiniers. Its handsome foliage makes an unsurpassed setting for the brilliant, amaryllis-like blooms which open more widely than any other variety. Its color is rich crimson with intense shadings in the throat, with broad white blotches across the lower petals. The petals, which are very wide, are much rounded, forming an almost circular flower. Princeps stands the sun and wind well, and opens all flowers, even to the last bud, when used for cut blooms in vases.

This and many other desirable Spring bulbs and plants are offered in Vaughan's Gardening Illustrated, a free copy of which is mailed with any order for this novelty. Price, ordinary bulbs, each 25c.; 3 for 65c.; medium bulbs, each 30c., 3 for 80c.; large bulbs, each 35c.; 3 for $1.00, prepaid with catalogue. All are of blooming size.

VAUGHAN'S SEED STORE
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## Strawberry Plants That Grow

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Also Raspberry, Blackberry, Currant, and Grape Plants, Asparagus Roots and Seed Potatoes in assortment. All stock **warranted high grade and true to name.** Forty-page Catalogue with cultural instructions, Free.

C. E. WHITTEN, Box 10, BRIDGMAN, MICH.

## EVERYTHING for the GARDEN

is the title of **Our New Catalogue for 1905**—the most beautiful and instructive horticultural publication of the day—**186 pages—700 engravings—6 superb colored plates—6 duotone plates of vegetables and flowers.**

To give this catalogue the largest possible distribution, we make the following liberal offer:

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**Counts as Cash**

To every one who will state where this advertisement was seen and who encloses **Ten Cents** (in stamps), we will mail the catalogue

AND ALSO SEND FREE OF CHARGE

**Our famous 50 cent "HENDERSON" COLLECTION OF SEEDS**

containing one packet each of *Giant Mixed Sweet Peas; Giant Fancy Pansies, Mixed; Giant Victoria Asters, Mixed; Big Boston Lettuce; Henderson's Freedom Tomato and Non plus ultra Radish* **in a coupon envelope,** which, when emptied and returned, will be **accepted as a 25-cent cash payment** on any order amounting to $1.00 and upward.

PETER HENDERSON & CO. 35 & 37 CORTLANDT ST. NEW YORK CITY

## What to Do with Window-Garden Bulbs After Blooming

DO not throw away bulbs after they have flowered in the window. Take a little care of them until you can plant them outdoors, and they will flower in the garden. All you have to do is to see that the bulbs get thoroughly ripened.

The window is the best place for them, because it has the most sunlight, but if the plants are unsightly they may be removed to a light cellar. Give them less water now than before blooming. When the leaves get yellow the bulbs are ripening. It is proper to cut off the flower stalks, but not the leaves. Unless the leaves reach full size and maturity, the bulbs will not get large, strong, and ripe.

Dutch bulbs (tulips, hyacinths, crocuses, narcissi, etc.) are very slow to regain their vitality, and should not be forced two successive seasons. Plant them in the garden. The largest and heaviest hyacinth bulbs which have spent the season outdoors may be potted the first of September, and will give bloom extra early for cutting.

Several kinds of bulbs require frequent transplanting. Hyacinths and some others should have their place changed every year. Crocus should be transplanted every three or four years. The same interval is best for hardy narcissi also, or they will be overcrowded and become weak and spindly, and perhaps refuse to flower.

The Bermuda lily will bloom again in August if treated as follows, but will not be good for forcing the next winter: After it blooms, withhold water for ten days, then put the bulbs in a coldframe or sheltered place. Set them close and fill the spaces with earth and cover with three or four inches of dry leaves. If it is spring no sashes will be needed.

When cyclamen is through blooming withhold water gradually. The corms should not be allowed to get dry. A shady coldframe is best for them during the summer.

It is not worth while to attempt to raise Chinese sacred lilies a second time if they were grown in water the first time. On the other hand, if grown in earth, they and all other polyanthus narcissi will bloom every year if they receive proper treatment, such as should be given to other bulbs after flowering. When repotted in fresh, rich soil early in the fall, and kept moist until the growth starts, they have been known to bloom in November—before the new bulbs, in fact.

H. C. M.

# TREES

**Fruit and Ornamental.**

**Shrubs**
**Evergreens**
**Roses**
**Hardy Plants**

All the Best and Hardiest Varieties. Largest Collections in America. **Gold Medal**—Paris—Pan-American St. Louis. 102 prizes N. Y. State Fair, 1904. Illustrated Descriptive Catalogue (144 pages) **FREE** on request.

**ELLWANGER & BARRY,**
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**MOUNT HOPE NURSERIES,**
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**Established 1840.** Mention this publication.

# GLADIOLI for the GARDEN

If you want a garden of rich colors and a variety of exquisite shades you should plant Groff's Hybrid Gladioli. There is no flower of such easy culture, embracing the great range of color with endless combinations and varieties, as these Hybrid Gladioli. The graceful stalks with their burst of gorgeous coloring make the garden a veritable fairy land. Every shade or combination of shade can be produced. I am the United States representative and grower of Groff's Hybrids. Awarded the Grand Prize, World's Fair, St. Louis, 1904.

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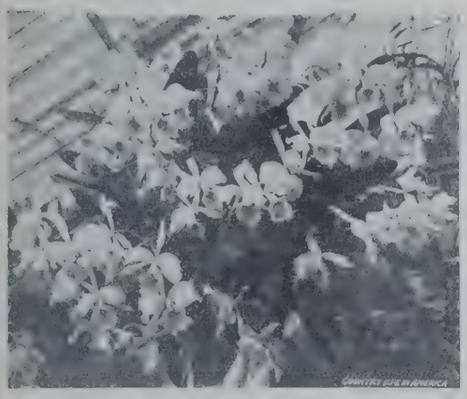

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in close practical touch with large and small estates in all parts of the country enables us to offer to every owner of Grounds and Gardens our special help in Designs and suggestions for the improvement of such, and with greater economy and saving than can be secured in any other way. We study to meet the individual requirements of each place, and supply both Plans and Material in the most economical manner. ¶ Whether in Iowa or Maine our practical suggestions enable you to plant your Lawn, your Garden, or any other portion of your place, with a great saving, and we ask you to write us and we will help you, giving our time to accomplish something for you in a practical and painstaking fashion. ¶ We send men of experience at any time at nominal rates to advise upon every leading question of Landscape work. Drainage, House location, Road making, Formal and old-fashioned Gardens and every feature of Landscape work, we give close and careful attention to. We will refer to many hundreds of private properties which we have brought to perfection. ¶ Our Nurseries are among the largest in the United States, and we ask but one profit in supplying our clients, selling at lowest rates possible. ¶ We offer every known hardy form of

**Trees, Shrubs, Rhododendrons, Evergreens, Herbaceous Plants, Vines, Dahlias, Bulbs, Etc.**

at prices which, after you investigate, will attract your close attention. ¶ If you have any problem to solve; any difficulty to meet in the way of Landscape work and Gardening, we are willing to assist, and will be glad to have you write us. From all parts of the country we have had inquiries in past seasons and with good results, and we invite correspondence with those who wish aid of an expert character. WRITE US, AND SEE OUR CATALOGUE.

THE SHADY HILL NURSERY CO.
44 Broad Street, Corner Milk - BOSTON, MASS.

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Also Peonies and Ornamental Hedge Plants

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Mailed on request

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457 ELEVENTH AVE., PATERSON, N. J.

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Kills insects on vegetation, fowls and calves. Introduced 1880. *Is effective and safe to use.*

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**Superb** Cactus, Show, Fancy, Pompon, Decorative, Single **Dahlias**

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44 pages 9x12 inches; 22 colored plates showing in natural colors 216 varieties of Fruit, with concise description, including season of ripening of each; 64 half-tone views of Nurseries, Orchards, Packing Houses, etc. **Send 50 cts.** and we will send the book post-paid, and **Rebate Ticket** permitting return of book **by mail** within 60 days and we refund 50 cts. Or, mail within 1 year, Rebate Ticket with $12 order for nursery stock and we credit **$1.00** in part payment on order and you KEEP THE BOOK **free.** **WE PAY THE FREIGHT.**

**WE PAY CASH** weekly and want **more** home and traveling salesmen. OUTFIT FREE.
**STARK BRO'S, Louisiana, Mo.; Atlantic, Iowa; Fayetteville, Ark.**

Name one ad on this page that is so ... Why doesn't Vaughan use cuts from ... (this magazine) in his advertisements in ours.




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Grand Prize—World's Fair, St. Louis

**Walter Baker & Co. Ltd.**

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LOOK FOR THIS TRADE-MARK



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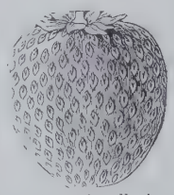

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WE are engaged in testing out and breeding for profuse bearing the varieties that should have preference. Whatever else you will plant this spring, don't omit

MARK HANNA

THE GREAT NEW VARIETY

A good pollenizer and dependable bearer in great quantities of large, luscious, shapely berries. Plants a rich dark green; vigorous, strong growers. Whether for the home garden or for market, no other variety will yield richer returns. Our spring of 1905 list includes upwards of 40 varieties—the choice kinds. We guarantee the quality of plants to please.

HARRISON FRUITS

propagated in a favorite climate, include every variety that is choice in **Apples, Peaches, Pears, Plums, Grapes, Cherries** and **Strawberries.** We are shipping plants and trees to nearly every State in the Union. **Safe delivery guaranteed.**

OVER 1,000 ACRES IN FRUITS

*Write for Free 1905 Fruit Catalog*

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BOX 76, BERLIN, MD.



## Hardy Flowers and Ferns

*The best sorts in greatest variety*

CACTUS DAHLIAS A great assortment

Garden Seats and Rustic Furniture

*Send for Catalogue*

NORTH SHORE FERNERIES, BEVERLY, MASS.



¶ Tender plants predominate in so many modern gardens that lovers of flowers should be grateful to Mr. J. Wilkinson Elliott for bringing forth an argument, in the shape of a sensible and practical book, in favor of our native asters, lilies, hollyhocks, and other hardy plants. "A Plea for Hardy Plants" is sure to appeal to all garden makers. It is well illustrated. Net, $1.60 (Postage, 12c.)

DOUBLEDAY, PAGE & COMPANY
133-137 East 16th Street - New York City



Vaughan's Special

## Scarlet Globe Radish

A BEAUTIFUL scarlet globe, bright red without a shade of purple, grows from seed to table in three weeks. Of delicious flavor, slow to get pithy. We import this from a French specialist whose seed we find produces Radishes of remarkable uniformity in size, shape, and brilliant color. Two ounces of seed used in partial sowings every ten days, from early Spring, will supply a small family the whole season with this indispensable vegetable. We mail two ounces of this **Vaughan's Scarlet Globe Radish** for 15 cents, with our free 1905 catalogue, a mirror of American Horticulture.

VAUGHAN'S Seed Store

84-86 Randolph St., Chicago 14 Barclay St., New York

## Forcing Rhubarb and Asparagus Without Expense

RHUBARB and asparagus may be "rushed" in early spring and brought, steaming, to the table from two to four weeks earlier than is usual with the home-grown product. Set half a barrel, with both ends out, over a clump and force it into the ground slightly. Pile fresh stable manure, steaming hot, against the outside of each half-barrel, and lay hotbed sash across the top if weather is still freezing cold. A four-sided box, smaller at top than at bottom, is used for the same purpose, and though more convenient, is not always so available as the half-barrel. Cover the barrel with old bagging or straw. During March, three weeks will give a crop of excellent, tender rhubarb. The plant is not injured by this mild forcing, and can be used for the same purpose next year.

If the plants are thus protected by boxes or barrels in fall before freezing, and packed loosely inside and solidly outside with litter, good, tender stalks may be had even earlier. The litter should be cleared away in February and fermenting manure used as described above.

Coldframes, hotbeds, greenhouses and mushroom caves are all used for forcing rhubarb, but lacking these one may utilize an ordinary root-cellar. The only requirements of this hardy plant are warmth and moisture. It will grow best in a temperature of from 45° to 60°. The less light they have the tenderer the stalks will be and the ruddier their color. The acidity also is less in cellar-grown pie plant, and less sugar is required in cooking. For cellar forcing, plants should be dug any time after frost from beds three or four years set. They should be lightly covered, to prevent alternate freezing and thawing, and allowed to remain outdoors until slightly frozen. The roots may then be packed closely in a box or even on cellar floor. Soil should be filled in between the roots, and the crowns buried from four to six inches. The temperature should be even and the soil moist. In a cold cellar a lighted lantern placed near the plants often supplies enough heat.

A dozen strong roots will supply a small family with a taste of these vegetable, so delectable in earliest spring. The roots once forced in the cellar are thrown away. The family asparagus and rhubarb beds that have had good care for several years ought to be able to spare a few well-stored roots for this purpose every winter.

Should be same type as Asparagus, page 44

### RENOVATING AN OLD ORCHARD

*Q.* We have just bought an old orchard of apple, pear, and cherry trees, some dead, some diseased, others in a hopeful condition. What can we do with them before spring?

*A.* Get busy at once. Cut down the hopelessly invalided and the dead trees and have them cremated, but save their precious ashes. Grub out the stumps. Saw off smoothly the diseased branches close to the trunk or fork, leaving no stub to invite decay. Chisel out the rotten wood, rake the fallen leaves where larvæ and infection lurk, and make bonfires of all this rubbish. The tree surgeon should use creosote stain, tar, or orchard paint on every amputated part. Fill the chiseled cavities with Portland cement (1 part) and sand (6 parts), applied with a trowel on a mild day, when there is no danger of freezing before the paste hardens. Buy a spraying outfit and write to your State Experiment Station or the Department of Agriculture, Washington, for directions for mixing your own insecticides. Begin to apply them early, and continue to spray with regularity while insects may crawl or fly. Invite chickadees, nuthatches and woodpeckers to help you exterminate insect pests by hanging lumps of suet or marrow-bones in the trees. Have houses for bluebirds ready by March 1st. Spread well-rotted manure or a high-grade commercial fertilizer in the spring, plow or harrow it in, using a disc harrow, if possible, to cut up the old sod. Dig about the roots of trees with a fork, so as not to tear them. Set out well-grown young trees between the old broken rows, which may disappear when the new orchard comes into bearing. Plant red clover or cowpeas for a cover crop, not only to cut green for the cows, but to plow under and add humus, nitrogen and bacteria to the starved soil. Keep a few beehives in the orchard to insure well-fertilized blossoms. The rejuvenated old trees will give you an abundance of fruit until the new orchard crowds them off the field.

### AN ASPARAGUS BED

*Q.* I have asked many people how long it will take to make a new asparagus bed bear. The answers vary from one year to seven years. I should be glad to have your judgment and learn just how to go to work and what varieties to plant.

*A.* Much depends upon your stock. Don't buy baby roots or "culls," but select large, vigorous, two-year-old plants of the Colossal, Palmetto, Barr Mammoth and Mammoth Columbian White if you would have all the

**MELLIN'S FOOD BABIES**

**Result of Guessing Contest**

The above portraits were shown in our exhibit at the St. Louis Exposition. We offered $250.00 in gold to the person who could correctly guess the boys and girls in the 20 numbered pictures.

No one guessed 20 correctly.

Mr. George Harrison, Enfield, N. C. was awarded the $250.00 the only person guessing 18 correctly, this being the largest number of correct guesses.

**Mellin's Food received the GRAND PRIZE, higher than a gold medal, the Highest Award of the St. Louis Exposition 1904.**

No other infants' food received so high an award.

MELLIN'S FOOD CO., BOSTON, MASS.

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Vegetable and flower **SEEDS**
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SEEDS THAT GROW

BURPEE'S SEEDS

# Burpee's Seeds

**are famous for producing most of the prize-winning products** at State and County Fairs. The illustration above shows the first prize collection at OREGON STATE FAIR, while photographs (or letters from the winners) of the first prize exhibits at the 1904 State Fairs of New York, Minnesota, Wisconsin, Kansas, Iowa, and Indiana are published in our NEW CATALOGUE FOR 1905. Many other prize awards, with full particulars, are published in our *New Prize Supplement for 1905*. ☞ Besides **several GOLD MEDALS,** the products of BURPEE'S SEEDS *Exclusively* were awarded

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### for Vegetables at St. Louis World's Fair!

**IF YOU** would have the very best seeds that can be grown, you should study **BURPEE'S FARM ANNUAL for 1905,** "The Leading American Seed Catalogue." An elegant **new book of 178 pages,** with hundreds of illustrations and beautiful colored plates, it honestly describes all varieties *worth growing*, including SUPERB NOVELTIES, which cannot be had elsewhere. Interesting *photogravures* illustrate the conduct of the World's Largest Mail Order Seed Trade, and give glimpses of our famous FORDBROOK FARMS—the most complete trial grounds in America. ☞ Your garden will *not* be as *good* as it should be, unless you first study BURPEE'S FARM ANNUAL FOR 1905. Shall we mail you a copy? If so, **write TO-DAY!**

**W. ATLEE BURPEE & CO., SEED GROWERS, PHILADELPHIA**

*Out From the Northwest it has Come at Last—*

THE GUARANTEED APPLE!

# "THE MINNETONKA APPLE"

which for the first time in the history of Horticulture bears a Nursery Guarantee, is propagated, owned and controlled by

L. L. MAY & CO., whose MAYFIELD NURSERIES

distinguished for exclusive productions, are the most Northern in America. This latest triumph of apple culture, the pride of the State of Minnesota, is named after one of her beautiful silvery lakes, "Minnetonka." The fruit is very large; flesh tender, crisp, sub-acid; the ideal cooking and choicest dessert apple. **"The Minnetonka"** thrives luxuriantly and yields prolifically in the most rigorous climate where all others fail. Season late, keeping **two months longer** than the well-known "Wealthy." **Hardy as an Oak.**

**WE GUARANTEE** **every tree of "The Minnetonka" to produce a bushel of fruit, and will replace, free of charge, every tree that dies before this result is obtained.**

**PRICES**—4 to 5 foot trees, 75 cents each; 3 for $2; 6 for $3; 12 for $6; by express or freight. Mail order size—one year old, 40 cents each; 3 for $1; 6 for $1.75; 12 for $3.

Every owner of a home should have one or more of "The Minnetonka," pride of the Northwest. Order to-day.

***Free Catalogue of Seeds, Trees, Plants, etc.***

**L. L. MAY & CO., ST. PAUL, MINNESOTA.** Mayfield Nurseries—Most Northern in America

standard white and green varieties. Empty the ancient treasure of your manure pit into trenches two feet deep and work it well into the soil, which, if inclined to stiffness, should be lightened with sand or sifted ashes. It goes without saying that the plot must be well drained. If the loom is not naturally rich and sandy, make it so. Bury the roots six or eight inches deep in three rows eighteen inches apart, to form the bed, which should have at least a foot of soil beyond the outer rows. Gradually draw the earth around the shoots as they rise, and keep down all weeds. Cover the bed in the autumn with coarse stable manure. Feed the plants generously for two years, when you may confidently expect them to repay you in kind. When well-grown plants are four years old, they should begin to supply the family, and a rightly cultivated bed should last unimpaired through one generation.

#### GERANIUMS IN BLOOM ALL WINTER

*Q.* How can I have geraniums blooming in my sitting-room window by Thanksgiving and keep them gay all winter?

*A.* Make cuttings from old plants in May or after danger from frost, choosing only the most vigorous shoots. Cut close to a joint with a sharp knife, and slit the stem where you put it in the earth. Give the cuttings good, light soil, but not over rich. Sink the pots in the open ground under a shady tree. Usually, cuttings are made too late to insure vigorous plants and early blossoms.

#### A CHEAP HERBACEOUS BORDER

*Q.* There is a part of our home acre where I long to see a hardy herbaceous border about fifty feet long, yet I have no more than ten dollars to spend on it. Is the dream impossible?

*A.* Not if you will wait a year for results and are willing to do much of the necessary work yourself. Set aside a small plot in your vegetable garden for a nursery, and spend half your appropriation, if need be, on having this and the proposed border next the lawn well spaded and manured. Buy only such seeds as you cannot beg, borrow or steal from your friends' gardens. Plant Oriental poppies, Boltonia, sweet-williams, pyrethrums, larkspurs, foxgloves, coreopsis, chrysanthemums, hollyhocks and other old favorites in May. Weed and water them throughout the summer, transplant them to your border in September, cover them with stable litter in the autumn, and look for flowers the next season, with greater and greater profusion each succeeding year. Save a dollar or two for narcissus and other Dutch bulbs. The cheap sorts are very charming. Try to have only flowers of harmonious colors in bloom at once, and distributed from crocus to chrysanthemum time. Do not overlook the decorative and lovely wild flowers, most of which improve surprisingly under cultivation. The tall Canadian goldenrod is superb in the hardy border; so is the cardinal-flower, the mountain laurel, butterfly-weed, columbine, wood or meadow lily, the swamp-rose mallow, the iris, and the meadow-rue among a host of others. Violets make a beautiful edging.

FND promised to get the U. F. to use a less chesnutty cut.

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In the land of sunshine, fruit and flowers, where there are no sudden changes in temperature, but a tonic, balsamic, bracing air the year round. Best reached via
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Operating Daily the
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Traversing
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INQUIRE
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129 South Franklin Street, Syracuse

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*Real Poultry Fence for Real Poultry Yards*

Superior to the ordinary wire fence because of the square mesh and twisted wire principle.

This construction gives the fence added rigidity and strength, at the same time allowing tight stretching without the consequent sagging inevitable with the old-style netting.

The construction of this fence is such that no top rail or bottom board is necessary, and only half the usual number of posts are required. This does away with a large item of expense.

The mesh at the bottom is 1¼ x 3 inches, small enough to prevent the escape of the chicks, and grows larger gradually to the top, which offers no secure place for alighting, thereby preventing the poultry from flying over, so fence need be only four or five feet high.

It can be used as a field fence as well as for poultry fence.

Sold by the rod, not by the square foot—in rolls of 10 and 20 rods —50 rods or more delivered F. O. B. nearest depot. Made in widths from 12 to 84 inches. Costs no more to put up than cheaper fencing or netting, and lasts much longer.

We furnish strong steel pipe gates covered with extra heavy Union Lock fencing complete with hinges and latches.

*Write for Catalogue and "A Short Story for Poultry Raisers"*

UNION FENCE COMPANY, 116 Liberty St., New York

Mills at : New Haven, Conn.; De Kalb, Ill.; Oakland, Cal.

This Trade Mark in Colors Appears on Every Roll

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## Annual Catalogue

Covering the four Great Departments of Gardening

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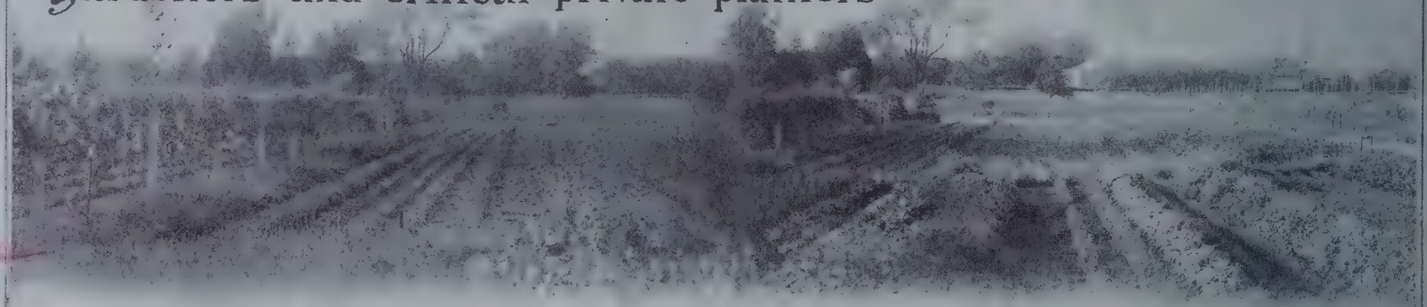
As supplied by us for more than Twenty Five years to the market gardeners and critical private planters



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The best in America A most complete list of the best only

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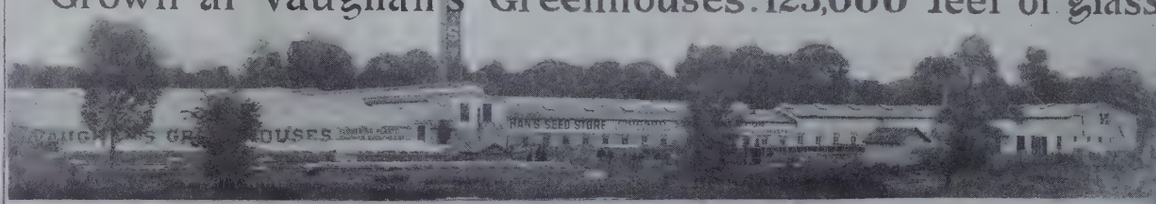

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Grown on our nursery grounds.

**Mailed Free** to all intending Buyers. Others please enclose 10¢ half price.

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*An Illustrated Magazine on Practical Gardening*

NO. 1

10c.

TWENTY REGULAR DEPARTMENTS: THE GARDENER'S REMINDER; COLDFRAMES AND HOTBEDS; THE YARD GARDEN; VEGETABLES; BULBS; ROSES; ANNUAL FLOWERS; THE SMALL GREENHOUSE; THE WATER GARDEN; THE WINDOW GARDEN; GARDEN INSECTS; THE HARDY BORDER; RECENT DISCOVERIES; ETC.

# THE GARDEN MAGAZINE

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GARDEN MAGAZINE

Plans dated Dec. 21st, ~~1904~~. (17 full-page depts)
48 pages; 22 text; 26 ads,
1¼ columns of contam.

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| 30 | Coldframe+ and Rose Dept.+ ——— √+○∅□ | |
| 32 | Bugs + √+○∅□ | |
| 34 | Window Garden+ ——— √+○ | |
| 36 | Garden Flowers+ ~~Vegetables and Suggestions~~ √+○ | |
| 38 | Vegetables+ ~~Back Yard and Recent Discoveries~~+ √+○ | |
| 40 | Bulbs + √ | |
| 42 | Recent Discoveries & Suggestions ~~Answers to Queries~~ √+ | |
| 44 | California Dept. (The only column that can be cut) √+○∅□ | |
| ~~46~~ | California Dept. ——— √ | |

√ = top, base
+ = Valley rect
○ = " retd
ϕ = Figs rect
□ = " retd

GARDEN MAGAZINE 19

Plans dated Dec., 19, 1904.
48 pages; 22 text; 26 ads.
6 columns of contam.

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| 42 | Answers to Queries | ✓ | |
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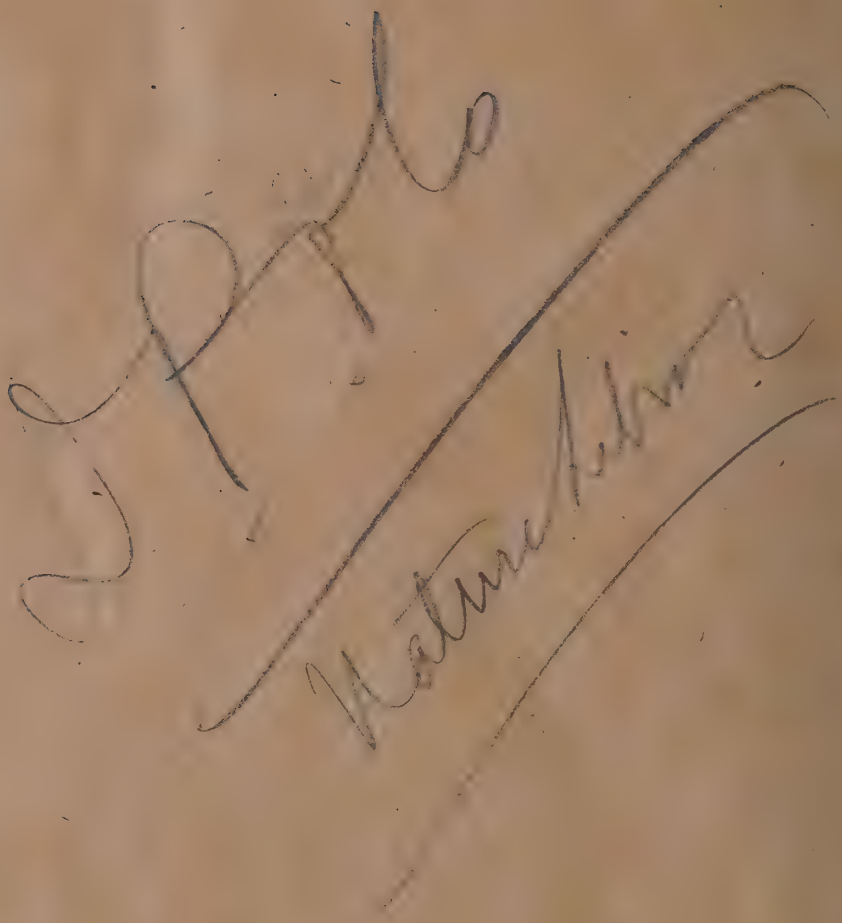

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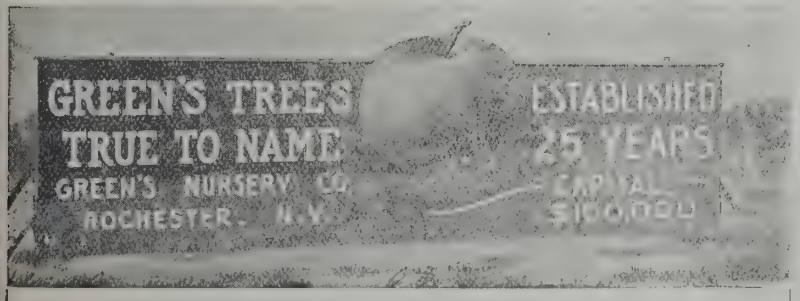


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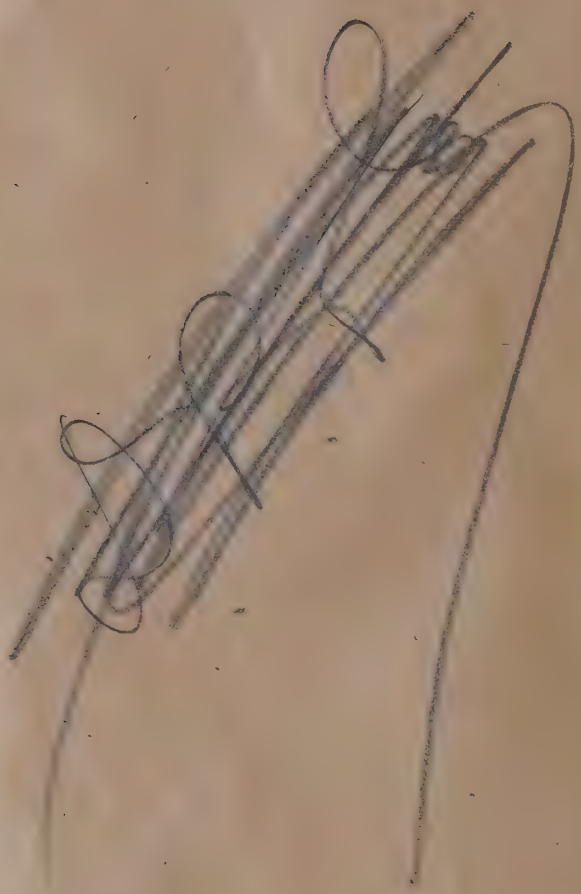


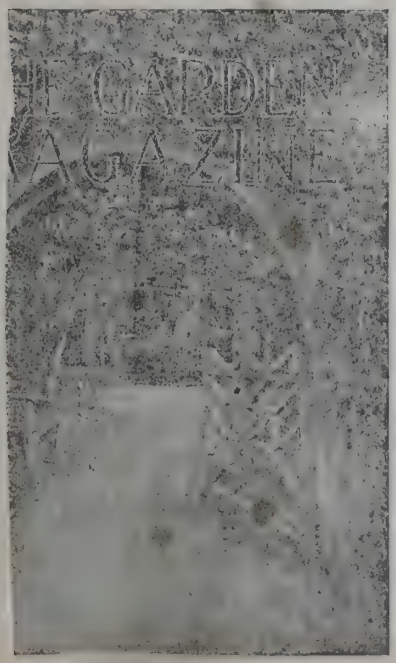
# THE TALK OF THE OFFICE

"To business that we love we rise betime
And go to't with delight."—*Antony and Cleopatra.*

### PLANS AND PURPOSES

EN any one feels the call to start a new magazine, there rises up a well-class of people who protest that there ;azines enough, and it is possible that ill say this apropos of THE GARDEN INE.

)ur part, we have been surprised at it patience of the public, which has waited for a beautiful periodical to that most fascinating and refresh-ill subjects, the garden. There are l and attractive monthlies devoted r other subject under the sun, from s to chickens, but no such magazine iave in mind to make exists. Our ficulty will be, we fear, not to find a but to make a magazine good enough the demands of that market: it will ittle while to get in full swing of the ld that we hope and mean to occupy. w the deficiencies of this first issue, know where our real shortcomings we shall be grateful for practical )ns for improvement in text or illus- and especially we invite the stories ial gardening experiences when they tical and inspiring.



The March Number

### A NEEDED MAGAZINE

THE GARDEN MAGAZINE is the logical working out of the growing interest in the garden not merely as a means of livelihood (though we expect to see more and more people turning to it as a life work), but as a delight and pursuit for the busy people in the world who find a new fascination in the things of the soil.

In England, gardening papers and magazines have circulations running into the hundred thousands; the best authorities are represented in their columns, and in technical matters they are far more advanced than would meet the needs of any large public in this country; but they are, with few exceptions, not beautiful. There is really no excuse for a periodical which touches the things of nature that has no beauty of form and illustration; and here, we have felt, there is a great opportunity.

### QUALITY, NOT BULK

Fine printing and paper and fine cuts cost about twice as much as ordinary printing, cheap paper and poor illustrations, and yet if one does not attempt to give too much in quantity, the quality may be sustained and the magazine sold at a low price. THE GARDEN MAGAZINE will contain the very best we can get, and we expect to cover the whole subjects with crispness and interest; we intend that all articles shall be short and to the point.

### TIME OF PUBLICATION

As the contents of the magazine must necessarily be timely, and as each number will dwell a good deal on the things to be done month by month and season by season, we propose to have every issue in the hands of our subscribers about two weeks before the beginning of each month. Fully half the pleasure of gardening is in the planning of one's work and the joy of anticipation. Seeds and plants are to be purchased and work cut out before the month opens, and we feel that the early arrival of the magazine should stimulate one's interest in advance.

### THE MARCH NUMBER OF THE GARDEN MAGAZINE

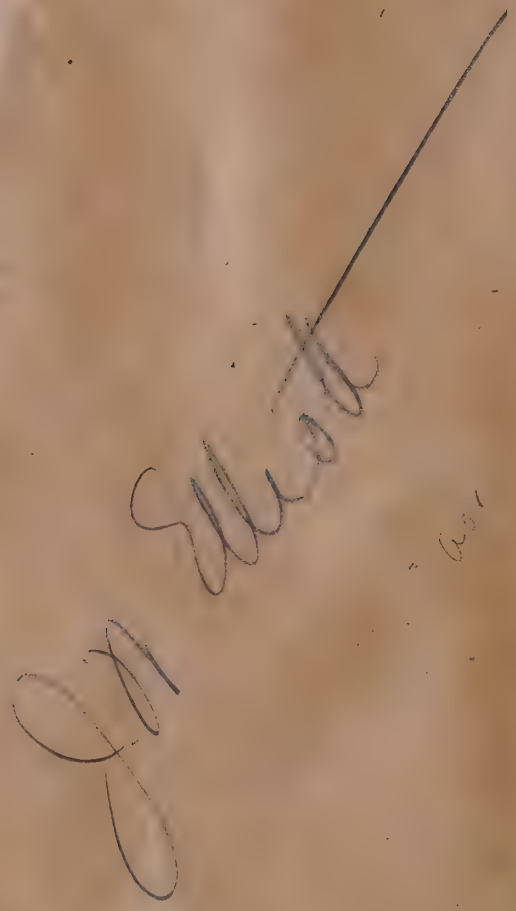
will be the chance to bring into this magazine the real spirit of spring. It is too early to speak as yet of the contents of that issue. It will be changed and changed again: the least attractive articles or subjects will be displaced by more attractive ones—it is wiser to waste a less attractive article when a better one appears than to print the second-best. If you find any subject neglected in this initial number, let us know what it is.

### THE FEBRUARY ISSUE OF COUNTRY LIFE IN AMERICA

Our older magazine publishes in February an article called "The Love-Making of the Grouse," which typifies the kind of thing the magazine stands for. The photographs, by Josef Brunner, depict this shy bird at his mating season, when the cock sets out

The February Number

to win his lady-love. That such a series of life photographs could be made is almost incredible. These photographs form but one of a series which have been appearing month after month on the squirrel, the tarpon, the beaver, etc., and represent months of painstaking work. The time and patient effort wasted even by the most expert photographers to gain the results given to the public can hardly be realized.



# The Garden Magazine

VOL. I.—NO. 1 FEBRUARY, 1905 ONE DOLLAR A YEAR TEN CENTS A COPY

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## THE GARDENER'S REMINDER

[For the purpose of reckoning dates, New York city is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

### THE FIVE MOST IMPORTANT THINGS

*PLAN your garden;* make a diagram. *Send for catalogues now.* Order seeds, plants, and tools now, if you want better goods for the same money.

*Study fertilizers*, and decide what you want, where to get it, and how much to pay.

*Resolve to kill the bugs* this year. Study spraying, and get your spraying outfit now. Don't put this off till March. See the new department, "Killing the Bugs."

Build a coldframe and a hotbed.

#### OUTDOOR WORK IN THE NORTH

On pleasant days, prune apple-trees and grape vines. See article by Professor Craig.

Mulch strawberries and the hardy border; alternate freezing and thawing is deadlier than 10° below zero.

Manure the lawn, or better still, scatter bone-meal on the snow; it harbors no weed seeds. For details, see "The Fruit Garden" and "The Hardy Border," pages ∞ and ∞.

Haul out manure to the vegetable garden as fast as it is made, or else keep it under cover and fork it over every week.

Start in on any grading or draining you have in mind. Time will be too valuable for this next month.

Remove roots and stones. Possibly, the stones may help to make a good rockery.

Unless you have previously spread manure on the ground beneath the vines, shrubs, and evergreens, do it now.

#### HOW TO RAISE EARLY VEGETABLES

Make or buy a hotbed before February 1st, and you can have home-grown radishes in February. A crop can be raised in twenty-one days, if you know how!

*If you want fresh vegetables in May*, sow any time in February in hotbeds the following seeds in order to have strong young plants to set outdoors April 15th, or whenever the danger of severe frost is past:

Early cauliflower, if you want the most delicious member of the cabbage tribe out of season.

Kohlrabi, one of the good things the Germans appreciate, and we don't know. Looks something like an above-ground turnip, but tastes better and has a flavor of its own.

Lettuce, next to radishes, the easiest and quickest crop. Will make heads in coldframes by May 1st.

Leeks, if you want to have your soups taste like anything.

If you care for young onions, crisp and tender, now's the time!

Tomatoes may gain a little on the season if transplanted into pots and kept pot-grown until settled weather (end of May), then turned out of pots into the open garden.

If you like a salad plant with a "tang" in it, try endive, and tie up the plants so they blanch. When you once acquire the taste, nothing else will do.

#### PUTTERING CHORES DOWN CELLAR

Look over potatoes, celery, vegetable roots, dahlias, cannas, gladiolus, and, if you are fortunate enough to have any, apples and pears.

Make the fruit cellar better, and have it separate from the vegetables. Read the two departments, "Canning and Preserving" and "The Fruit Garden."

Clean the rusty tools, sharpen the hoes; fix a new and attractive place for the garden implements. Mark a place for each one on the wall, if you like, so that nothing will be lost or misplaced. If you haven't a wheel-hoe, you are 'way behind the times! Get one now, and get enthusiastic about the best new garden-tool of the last century!

#### FLOWERS WITHOUT A HOTBED

Sow now in flats in the home window the following flower seeds:

To make the autumn red, scarlet sage or salvia.

To fill gaps in the hardy border, single dahlias.

For hanging-baskets, the cigar plant, *Cuphea flavæ*.

If you want it at all, now is the time to start ageratum.

For May bloom indoors, ten weeks' stock, *Matthiola incana*, var. *annua*.

To cover permanent bulb-beds, after the spring flowers are gone, try verbenas.

For edging the garden walks, tufted pansies. If sown now, they will bloom all summer.

For a trailing-vine for a veranda-box, the variegated periwinkle, *Vinca minor*, var. *alba* or *aurea*.

If you want an annual vine on your porch, before the permanent ones are large enough to cover it, try *Cobæa scandens*.

For a part of the grounds where you want a big mass of color in September and don't mind the stakes, try cosmos.

For large specimen plants in twelve-inch pots for hall and porch decoration, sow seeds of cup-and-saucer Canterbury bells.

For a summer bed on the North side of a building, where there is plenty of air and diffused light without strong winds or direct sunlight, try tuberous begonias.

If you want a white-leaved foliage plant for a flower bed, sow seeds now of one of the lusty millers, *Centaurea cineraria* or *gymnocarpa*, the latter known to the trade as *Centaurea argentea* or *plumosa*.

#### THE SOUTH AND CALIFORNIA

RASPBERRIES, strawberries, blackberries, pears and apples may be planted now.

Violet beds should have a weekly dose of fertilizer.

Plant sweet peas—the earlier they can start the better they will do.

*Vegetables which may be planted in the latitude of Baltimore.* Sow in hotbeds: cabbage, cauliflower, beets, lettuce, onions, radishes, egg-plant, peppers, and tomatoes.

In open ground, the last of the month, beets, carrots, celery, kale, parsley, radishes, onion sets, horse-radishes, and hardy lettuce plants.

*Vegetables which may be planted in the latitude of Norfolk.* Sow in hotbeds: egg-plants, and peppers.

In coldframes: cabbage, brocoli, cauliflower, endive, Kohlrabi, lettuce, celery, parsley, and cress.

Outdoors: early potatoes, early English peas, carrots, beets, leeks, mustard, early radishes, and turnips. Set out cabbage plants started in November. Start cucumbers in pots for forcing.

1. The Japanese iris, largest of the family. Flowers nine to twelve inches across. A moisture-loving species. The flowers are flat—i. e., they have no upright petal

# The Best Irises—By Neltje Blanchan

Photographs by F. A. Waugh

2. The Siberian iris, distinguished by its early season and tall, slender stalks. It blooms in May, or about two weeks before the German iris

LITTLE wonder that a plant so boldly decorative in outline and bearing a flower of exquisite coloring so marvelously formed should make its strongest appeal to the artistic Japanese. From these foremost gardeners of the world has come a strain of irises that neither orchids nor lilies can rival in beauty of form, texture, coloring, markings, and general effectiveness. In the Mikado's garden, under ideal cultural conditions—that is to say, in rich, warm, sunny, alluvial land—the blossoms will measure from nine to twelve inches across their flat petals. Around the shores of those miniature lakes and streams in which the Japanese gardener, however humble, delights, the irises are no less lovely because a small garden demands that they be of lesser size. Every one appreciates the iris in Japan. Therefore, on the most costly *cloisonné* and ceramic, as well as on "many a vase and jar, on many a screen and fan," whose decorator may receive only an eighth of a cent for his sketchy painting, this flower, imperial and democratic, is the most familiar. For the artist, at least, its value is double that of the national chrysanthemum.

Yet the *Iris Kæmpferi* may be as easily grown as the potato. Moreover, it is perfectly hardy. High, dry lands do not suit its moisture-loving roots, but good garden soil, enriched with thoroughly decayed ma nure, deeply dug in and well watered durin May and June—the blossom months in th northeastern United States—will produc flowers of wonderful size. Do not select shady place for your irises. They thriv under full exposure to the sun, but moistur they must have to bloom their best, an sometimes their roots will penetrate tw feet deep to get it. Naturalized in the wate garden, where the tall, narrow, blade-lik leaves rise in phalanxes around the shor and the stately beauty of the flowers is re flected in the mirror below, they are ideall situated; but let no one forego the deligh of growing Japanese irises merely becaus he has not a pond or stream on his place Some exceedingly fine specimens have bee produced in a city back yard.

Now that the Occidental as well as th Oriental hybridizers produce an enormou number of seedlings every year, new varie ties are constantly offered in the catalogue —so many that, were their charms describe in Japanese, they could scarcely be mor bewildering to the American amateur. Th original parents of Kæmpfer's lovely trib were *I. lævigata* with drooping "petals, modeled on the natural rule-of-three plan and *I. setosa* with broader, more horizonta "petals," the three outer and the three inne

ones being of equal size in many of its new varieties, giving a strange regular symmetry to the flower. The pernicious trick of doubling and multiplying "petals"—a common vice of the up-to-date sport—quite destroys the iris's natural grace of outline, which is its chief characteristic and charm. Blotches and patches of color like a circus pony's sadly detract from its stately dignity. Surely the range of pure colors, from silvery white, through pale blue, lilac, plum, and purples, with exquisite veinings and star-like centers of contrasting shades or of gold, should satisfy the most exacting eye.

German irises differ from the Japanese in having shorter, broader, blade-like leaves and flowers not yet induced to lie flat, having three strongly recurved and handsomely marked "petals" or falls and three upright standards. Both kinds have creeping stems, and it is by division of these fleshy, thong-like roots that the plants are most successfully propagated. Set out early in the autumn, they should bloom the following May. It takes at least three years to produce flowers from seed—an interesting experiment for the amateur hybridizer, but one rarely tried except by commercial men. While not so impressively magnificent as the Japanese strain, the German irises are nevertheless very beautiful; their coloring including white, yellow, lilac, and purple—either one of which every iris would be in a state of nature—and, in addition, some queer browns and rich velvety maroons combined with yellows which are unusual and effective.

We hear of the common blue flag. In reality it is not a blue, but a purple. Yet there is a little dwarf iris, a variety of the Crimean *Iris pumila* and *I. Persica*, which are true blue—that heavenly color all too rare in our gardens.

No plants are of easier culture than the German irises. They like a dry soil, rich food, a sunny, open situation, and plenty of room to spread, but they do not insist upon any of these conditions. Neglect them, starve them, crowd them among the shrubbery, stifle them in the herbaceous border, bury them in the rock garden, still they will bloom—sulkily, perhaps, but far more than they really ought, considering. Give them a rich dinner once a year, and let them alone thereafter, they will repay you most lavishly. Just as the gorgeous pageant of Dutch bulbs—jonquils, narcissi, and tulips—passes, the German irises begin their royal show, several weeks before their Japanese sisters unfurl their banners. Special emphasis should be laid upon letting all irises alone. They resent being fussed over. If it is necessary to divide a clump, cut it in half with a sharp spade and fill in the hole with old, well-rotted manure. Don't disturb the entire clump in order to take away part of it, and don't bury the rhizome when you plant the root.

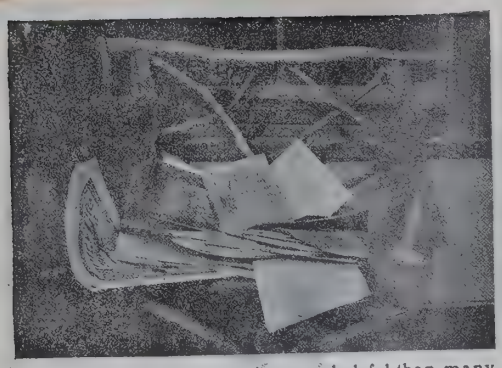
On the streets of London and Paris and in the market-places of western Europe are sold bushels of the very beautiful Spanish irises, whose charms are not yet appreciated here as they deserve to be. In loose, friable garden soil, in a sheltered corner, they yield a lovely crop of flowers to cut for the house. More dainty than the larger German and Japanese irises, they are airily poised like butterflies on the tip of tall, slender, swaying stems amid narrow, grass-like blades. Secure a ribbon of soft lead from your plumber, place it in the bottom of a bowl, pinch it about the iris stems, and so arrange a few that they appear to be growing out of the water. Pebbles conceal the lead and help the illusion. From the Japanese we are slowly learning not to bunch a miscellaneous lot of cut flowers in wads for our vases, but to give each flower its natural, characteristic attitude and isolation.

English irises, another group of these endlessly beautiful plants, grow from bulbs like the Spanish strain, but in form and poise the flowers more closely resemble the Japanese. Coming toward the end of the iris season, which they prolong until the hot weather, they are especially desirable for those who tarry too long in the cities to enjoy the spring flowers about their summer cottages. Bulbous irises suffer from moisture and bleak exposure. A dry soil, even clear sand at the base of the bulbs, preserves them from decay, and, while they must be well nourished if they are not to fail utterly, let no manure come in direct contact with these. The rhizomatous irises are the gross feeders.

Certain irises there are that should be in every garden. No one is too poor or too inexperienced to have at least one fine clump of Japanese or German irises; for instance, the early grayish-white Florentine "orris" (whose dried root furnishes the sachet of commerce), with its large grayish-white flowers, often six inches deep, the falls veined with yellow and green at the base with an orange-yellow beard; or *I. variegata*, with large, slightly scented flowers, their standards bright yellow, their falls claret-red heavily veined. The yellow flag of England, *I. pseudacorus*, is delightfully decorative, and cheap enough to naturalize in quantities with our own native species where one is so fortunate as to own a stream. In similar situations, or even in ditches, the small but showy Siberian flag in blue, white and purple varieties is a charmer. And now that irises are being so successfully forced in the greenhouses, there is not a month in the year when we may not have them in our homes.

4. A German iris. Of the six showy parts, the three outer, which are reflexed, correspond to the calyx; the three inner or incurved ones to the petals

3. German iris (Iris Germanica and allied species). The most popular iris and the best for general conditions



5. A plan made in winter is more helpful than many books at planting time

6. A good time to plan the garden—when the snow is on the ground

7. A delightful confusion, but you will raise more and better vegetables if you make a plan

# How to Plan the Vegetable Garden—By Edith Loring Fullerton

THE BEST WAY TO RUN THE ROWS—SCHEMES FOR SAVING SPACE, AVOIDING HAND-LABOR, AND GROWING TWO CROPS ON THE SAME GROUND

Photographs by H. B. FULLERTON; diagrams from sketches by the author

THE way to have more and better vegetables for less work is to plan the garden in February instead of waiting until May. Every one who fails to draw a diagram of his garden is likely to be swamped by the spring rush. Without a plan you are sure to plant too much of one thing and not enough of another. The only possible objection to planning the garden in winter is that it may "seem like work." The obvious reply is, "Don't make work of it. Enjoy it." If you have never tasted the joys of planning, begin now.

## HOW TO RUN THE ROWS

Let us consider first a medium-sized garden with a southern exposure and protection from the north winds. This, of course, will be the earliest garden, for it gets all the sunlight there is. (See Fig. 8.) If the rows run east and west, the rays of the sun strike only the southern side of the row. If, however, they run north and south, the sun's rays strike the eastern side of the row in the morning and the western side in the afternoon. The latter method seems to me to produce a more even and vigorous growth. Again, suppose the rows are planted east and west, the southern sun of summer will continuously draw the rows one way, southward only, thus pulling them out of plumb. This is another point in favor of north-and-south planting, for rows thus planted are drawn eastward by the morning sun, and this lean is corrected by the afternoon sun.

If the garden faces north (and by this I mean is unprotected from the north winds), would it not be possible to protect it on the northern and western sides by a hedge of privet, a vine-covered trellis or a grape arbor? The latter in this case would give the greatest amount of protection if made in the old-fashioned lattice style. Even a high board fence can be made a thing of beauty by covering it with vines, particularly climbing roses.

If your garden faces southeast and is entirely cut off from the western sun (Fig. 9), it will be better to run the rows northwest and southeast in order to get the greatest duration of sunlight, for in this situation every available ray is most valuable.

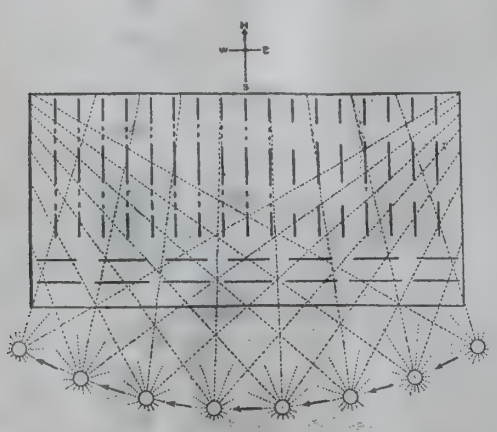
No matter how your garden may face, no matter what angles, curves or dimensions it may possess, you will see at once and very clearly the best thing to be done when you have it before you on paper with the area reached by the sun's rays laid out upon it.

## A "COMBINATION" GARDEN

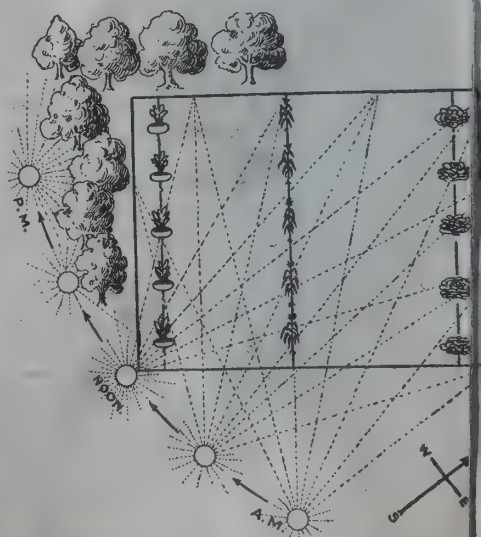
Suppose you live in the suburbs upon a lot not more than 50 x 100 feet or even less. You can surely spare a little ground for a vegetable garden. I know of one such dear little home plot and this is how it was laid out. (Fig. 10.) It is a corner lot. On the west and south run the streets of a suburban village, with broad curbs and stone sidewalks. It is a fenceless town; hence it was easy to coax a lawn right down to the walk. A few evergreens were dumped in a procession at the southwest corner, an unhappy dogwood (naturally a shade-loving tree) was trying to live on the sunny west side, while fruit-trees were located on the almost sunless eastern side of the house. It was undoubtedly a creation of some landscape gardener who had to a certainty missed his calling, but he accidentally did one thing very wisely, and we forgave him. As he had exhausted all available space except the back-fence line, and had a number of small arbor-vitæ plants, he placed them along the north boundary, and they "did the rest," soon forming a beautiful close and therefore effective wind-break which was of great service to the garden.

A detailed plan of this garden is shown in Figure 11.

The first back bed at the eastern end was sown to lettuce and radishes, half and half; the second bed, beets; the third, beans; the fourth, tomatoes; the fifth, corn. The front beds were full of flowers which screened the low-growing vegetables, while the taller ones made a fine background for the gay colors. These were the flowers used, all of the showy kinds, suitable for cutting: The first bed at the eastern end, phlox; the second, nicotiana; the third, nasturtiums, climbing over a small fir-tree; the fourth, scabiosa and the fifth, verbenas. The western boundary of the garden was an althea hedge again a wire fence. The fence was covered wi




8. To prove that the ideal exposure for a garden is toward the south; also that the sun's rays strike every portion of rows that run north and south, while only the south side of rows running east and west get the benefit of the sun




9. Showing why a garden that faces southeast sh have its rows run northwest and southeast

urlet runners, making a gorgeous bit against e street. At the front of all these beds wa strip of moss, curled parsley—backed b ainty Shirley poppies, making one of the ost beautiful combinations imaginable.

There were enough vegetables of the kinds planted (except corn; and in my estimation it takes a large plot indeed to raise enough corn) to satisfy a family of three.

### TWO CROPS ON THE SAME GROUND

If you are wise you will plant late corn after the lettuce and radishes are out, and more lettuce, corn salad, or endive after the beans are out. Then if you care to raise late crops, cabbage, cauliflower or spinach could go in where the early corn grew, and in this manner make the small patch earn its living and pay big dividends.

Here is a plan for successional planting Fig. 12). We will consider annuals only, e idea being to have the land in use all ason. The first sowing of each row may as follows: Row 1 is to have radishes and tuce, either one-half or one-third of the row lishes, as you choose; row 2, beets; row 3, en beans and peas; row 4, early corn; v 5, tomatoes; row 6 (not shown), parsnips d carrots. When the early crops are out row 1, it may be sown to middle-season n. When the early beets are out of row 2 perhaps you have sown one-half this early and one-half late beets), it may eive egg-plant or cauliflower. Row 3 y have summer lettuce or kale; row 4, a beans; row 5 may have cabbage planted ween the tomatoes, as the latter will be out time to allow the former a chance to head. rrots do not come out until late, and rsnips must be frozen to be at their best. It is well to remember one thing in making is layout—do not let two vegetables of the me botanical family follow each other; for stance, lima beans should not follow green ans or peas, as these are all of one family d draw about the same elements from the il. All members of the cabbage family are kely to have the same insects and diseases.

### A VEGETABLE GARDEN ARRANGED FOR BEAUTY

There is another suggestion in regard to planting I should like to make, and that is a Japanese or "radial" garden. Take the center of your garden, if it be not too large and of the proper proportions, and run the rows from this central point. This will give a vast number of opportunities for combining color effects, always considering relative heights and methods of growth (Fig. 14). The long rays must be spaced as close together to the central ring as the several vegetables will allow. I should think two feet would be a good average. If the rays are ong, a wide divergence at their outer ends ill result; short rows could be planted tween for a part of the distance.

The center of the circle should be occupied either a perennial or a plant that lasts late he fall. Cardoon, that beautiful, silvery, leaved plant, would be very handsome; nips, rhubarb, kale would be good. he center or orb of this Japanese garden plan offers a capital opportunity for the exercise of ingenuity and individuality. One or more plants of broccoli surrounded by a circle of beets would make a striking effect. The tall, gracefully striped and variegated kales might be encircled by parsley or a large hill of corn, tall-growing, or the dainty variety hedged in by cabbage. In this case, the corn could be replaced by a transplanting of Sakurajima radish.

A lima-bean wigwam of poles, supported at the base by lettuce or Pe-tsai (Chinese cabbage), would please many. The combinations are endless, and a high or low center effect could be obtained to suit one's fancy.

Ray 1 could have lettuce and radishes (it runs due south); ray 2, peas; rays 3 and 7, corn; ray 4, beets; ray 5, scorzonera; ray 6, beans; ray 8, onions or leeks. The intermediate rows could be planted every other one to celery, and the others to parsley, carrots, Sakurajima radish, and parsnips. These all last well into the autumn, so that the garden would always look well.

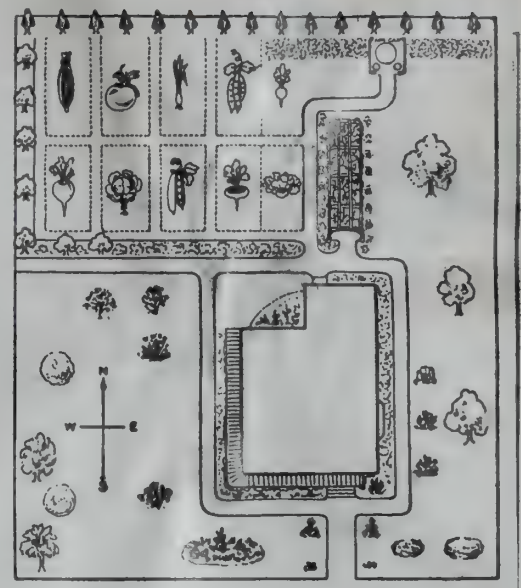
### THE FERTILIZER PROBLEM

There is one thing, how ver, that must not be forgotten, and that is th fertilization of the soil after each crop has b en taken out and before another one has been put in, for you can't expect to grow good cabbage when the corn has taken sufficient food from the earth to enable it to grow a stalk six feet tall and mature two to six ears of corn!

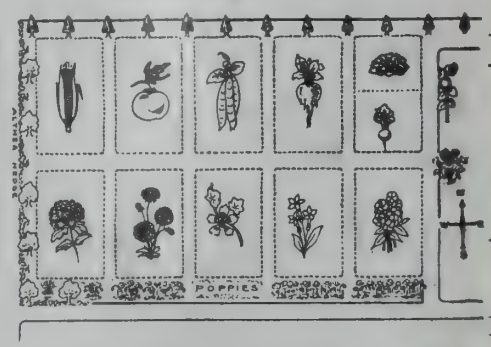
Suppose you have had a vegetable garden in the same spot for many years, and have given but scant fertilizer in that time, say, perhaps, nothing but manure, and you are wondering why your vegetables do not grow as rapidly and mature as perfectly as formerly. Could you spare that garden for one summer and sow it with cow-peas, soy beans or red clover, and plow that crop under in the autumn? These three varieties of plants (and there are many more like them) gather great quantities of nitrogen from the air. They have very long roots, and some possess little knobs, real nitrogen reservoirs, that store away the nitrogen which the leaves draw from the atmosphere. Nitrogen is the most difficult and expensive substance to obtain in fertilizer form, and is greatly sought after; it is used not only to develop quickly such crops as lettuce, but to force for a more prolonged period corn, beans, celery, etc. The readily soluble chemicals, such as nitrate of soda, are of course excellent, as they are quickly utilized by the plants, but because of their easy solubility they are soon washed away by rains. Moreover, they require moisture to render them available. The nitrogen storers are utilized to a greater extent each year. Their power is to absorb nitrogen from the air and to distribute it throughout the soil through the medium of their roots. When the stalks of these crops are plowed in, the nitrogen that they have gathered will be released as the plants decay. It is the cheapest way to buy nitrogen.

### "VACCINATED PEAS"

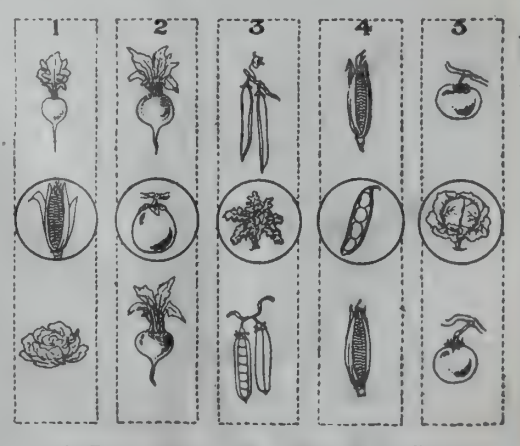
And as wonders never cease, the scientists have now captured the bacteria that attract



10. A suburban corner lot, the best feature of which is the windbreak of arbor-vitae that shelters the garden. This garden will raise enough vegetables for a family of three, except corn and potatoes

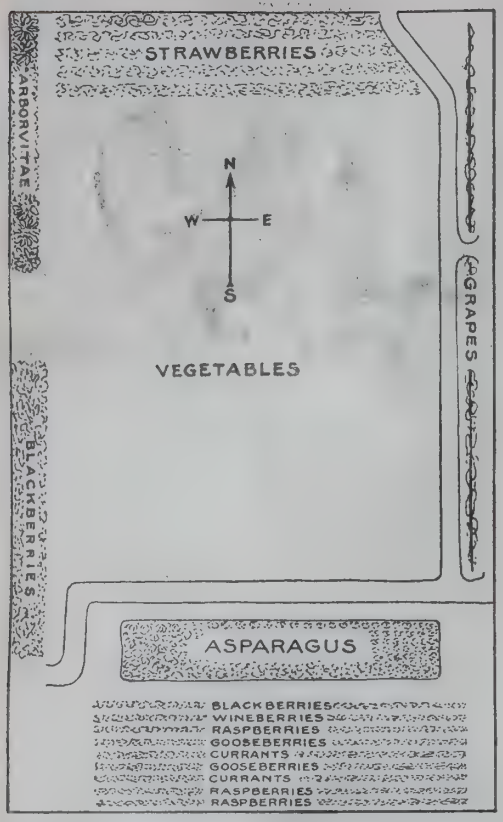



11. Detail of Figure 10, showing vegetables in the northern tier of beds and flowers in the southern tier. The contents of each bed are given elsewhere




12. Two crops on the same ground. The vegetables at the ends of the rows suggest the first planting; those in the middle indicate the succession crops

have now captured the bacteria that attract or urge the plants to draw the nitrogen from the air through the leaf and stalk into the root system. The bacteria trainer cultivates, tames or grows these small creatures, dries them, gives them to us to inoculate or vaccinate the seed or land, so that these plants will draw more nitrogen into the soil than they normally do, because, as in other manufacturing concerns, the supply keeps pace with demand. The Government gives us




13. The author's garden, showing the windbreak at the northwest, the perennial crops at one side as far as possible, and a big space free for plowing

"yeas tcakes," as we call them, so there is no outgo but a postage stamp's value, and the returns are great indeed.

I tell you what I think I will do. When our garden is run out and has to be sown with legumes (that's what they call these doctor plants), I will ask my neighbors to let me raise all the peas the entire community needs that year, and I will sow the whole garden to "vaccinated" peas and supply the neighborhood; then the plants can be plowed under in the autumn. Try this, and the following spring sow bone meal and wood ashes, and a little lime if the soil has not had any for three or four years, and the vegetables of that season will say "thank you" so hard you will be able to carry off all the first prizes at the County Fair. (Fig. 15.)

THE ADVANTAGES OF A COMPOST HEAP

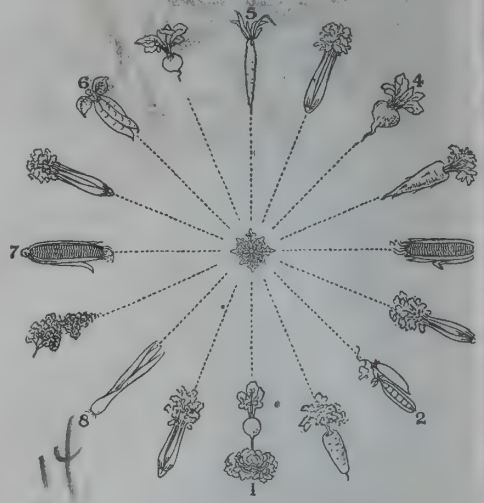
Suppose you have a new place where there never has been a garden. Choose your garden spot carefully, have it plowed up and harrowed, take out all the sod you can—but don't, I beg of you, throw it away, for it is better than a gold mine. Take the sod to some out-of-the-way corner of the place, turn it root-side up and leave it. I can hear you say, "I have no out-of-the-way place, and it would look so terrible here all summer." Never mind. Wait a bit. We will fix that in a satisfactory way to a surety. Keep the good work up, and throw the waste leaves of cabbage, lettuce, beets, outside stalks of celery, potato tops, bean and pea vines, and tomato tops cut off. It is easy, with the compost heap near the garden, to throw all this valuable material where it will do the most good, and while keeping the garden looking neat you are adding heavily to your working capital and disposing of rubbish at less expense than in any other way. Throw the autumn leaves on it, also waste from the kitchen, if you have no chickens that will turn it to good account. Turn the heap over in the spring, sow a few morning-glory, nasturtium, or wild cucumber seed in and around the pile, and you will have a thing of beauty and a joy all summer. When the sods are rotted they are the finest kind of fertilizer, for they are the substance of the soil for years and years, and you are returning now the bulk of that which has been taken away as long as those particular sods have been growing.

Why can't you leave them in the garden? Because they will grow if they get the faintest chance, and you will be busier pulling up grass than you care to be that first year, and remember that a good compost heap cannot be overvalued.

SMALL FRUITS

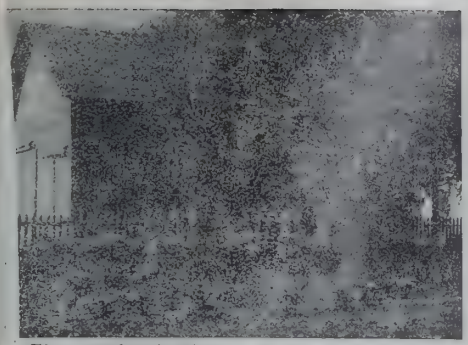
Let us take up small fruits for a moment, for no garden is complete without them. Blackberries, raspberries, gooseberries and wineberries are all "prickery," as the children call them, and should have a place to themselves, for it is very annoying, as well as mildly painful, to gather or to cultivate vegetables in close proximity to the thorns. I think it wise to give them a place all to themselves, somewhere else in the grounds, or, if territory be limited, plant them as the border to the vegetable garden. If your garden is inclosed by a fence, this opens up excellent possibilities, for a fence is a support and training-ground for your blackberries, raspberries and wineberries. Moreover, they should have a fence to keep them in good shape and within bounds anyhow. So if you do not care to use this inclosing medium for peas, beans and tomatoes, by all means train berry vines upon it.

The low-growing, virtually evergreen strawberries, with their beautifully formed leaves are in some respects very human, their children (the runners) are always moving away and making new homes for themselves; also relying on the good mother plant for guidance and support, which she supplies through the leading-string. This luscious berry should always have a bed by itself. Give to it as much ground as you can afford to spare, to allow the plants to remain there two years; at the end of that time, take the runners you have coaxed to take root in small pots buried in the ground close by, and start a new bed in an entirely different portion of



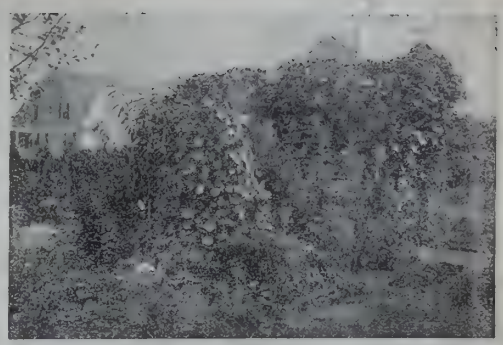

A suggestion for a Japanese or radial garden in which the vegetables are to be carefully considered as to color, height, and decorative value

15. Prize vegetables at a county fair. The products of a friendly neighborhood rivalry



The strawberries that grew in the lea of the arborvitae hedge were the earliest in the neighborhood

17. The beginning of a compost heap—sods, leaves, old vines, and tops



18. Some of the flowers that screened the vegetables in the garden sketched in Figures 10 and 11

garden. They are heavy feeders, and vines do their best and heaviest bearing second year, although they will yield a r crop the third.

THE AUTHOR'S GARDEN

May I sketch our garden for you, laying ut the berries? (Fig. 13.) This is only one f many plans, but it seems to be entirely satisfactory for our situation with its southern exposure.

Remember that bush berries are fairly high in growth and should not shade the rest of the garden too much, and also keep in mind the fact that strawberries should be sheltered somewhat, if you wish early fruit. Of course, currants should go among the gooseberries, for one could not get along without their piquancy and brilliant coloring, especially if one take pride in one's jellies.

Sometimes there are gardens shaded from a valuable amount of sun by a row of trees. This can at times be remedied by topping the trees, which will stimulate the trees' growth, keep them fuller and in better form, and at the same time let the sun over them into the garden.

THE PROBLEM OF INCLOSING A GARDEN

Is it desirable to have your garden inclosed? Is it necessary to keep out chickens, dogs, or children? I hope never your own children, for garden life means a fuller life for them, and being in mother's or father's garden will make the sowing, transplanting, thinning, and weeding so natural that their own garden will come as a matter of course. However, if the garden must be inclosed, let me offer a suggestion. Make a fence of locust posts, on which stretch one-inch-mesh chicken-wire. There may be a top and bottom rail, or not. It will furnish you a first-class pea, bean, and tomato trellis, and should a part be too shady for vegetables, plant wild cucumber or morning-glory, which will sow their own seed year after year and be no trouble to you, but, instead, a joy forever; or the entire fence may be made a thing of beauty by covering it with sweet peas or nasturtiums. When the peas and beans or tomatoes reach the top of the fence, which should be four feet, I think, cut the tops off and force the strength into the fruit. We use a combination of flowers and berries for the garden's division lines instead of a fence, currants, gooseberries, black-caps, and even the low-growing strawberry being utilized, and our friends at least always speak of the neat, well-kept appearance of our little garden plot.

# All the Foxgloves Worth Cultivating—By F. A. Waugh

Professor of Horticulture
Amherst College

THE FIRST OF A SERIES OF "LITTLE MONOGRAPHS" WRITTEN BY SPECIALISTS FOR THE EXPERT GARDENER, WHETHER AMATEUR OR PROFESSIONAL, AND DESIGNED TO BRING OUR KNOWLEDGE OF EACH SUBJECT UP TO DATE

Photographs by the author and HENRY TROTH

[EDITORIAL NOTE—When Professor Bailey completed his monumental Cyclopedia of American Horticulture, he announced that he considered it only a beginning; that his work was largely designed as a record of American horticulture at the beginning of the twentieth century, and that he hoped the Cyclopedia would be considered as a basis for further improvement. THE GARDEN MAGAZINE offers its columns to those who are in a position to contribute something to the advancement of horticultural science, and would be glad to co-operate with those who have investigations under way. Correspondence is invited. We particularly wish to hear from those who are growing complete collections of anything and those who are creating new varieties.

As a beginning, THE GARDEN MAGAZINE proposes two new things, which it is hoped will be considered improvements; first, that the readable or human portion of a monograph should come first, and the technical portion, which is only for reference, last. Second, that every species in cultivation should be provided with a "common" or English name, which should be passed upon by a committee representing all interests, and published in an official and formal way. The ornithologists have provided every bird with a vernacular name, to the great benefit of bird study; each wild flower in Britton and Brown's "Illustrated Flora" has an English name, and the time is now ripe for giving one to every cultivated plant.

Professor Waugh's article is the first of a new type of horticultural writing, in which the point of view is primarily human and horticultural, not the dry-as-dust botanical. The old style "alphabetical monograph" merely *describes* species; it does not *distinguish* them. This new department will do both, and hopes to be interesting also, as well as practical. The new plan combines the convenience of the alphabetical arrangement with the accuracy of the "key" arrangement, which alone can give one a grasp of the whole genus in the shortest possible time.]

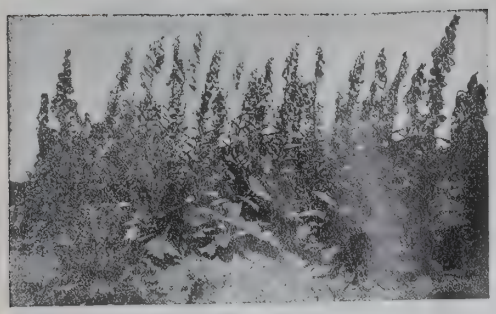
THE common foxglove is, or ought to be, one of the twelve most popular "hardy perennials." About the second week in July, when the foxglove is the queen of the border, there is a certain moment when each stately spire is at its best—the moment when the lowest flowers are quite open and the upper ones successively smaller, until the topmost buds are merely little dots of green.

It is impossible to resist the spirit of the foxglove; its whole expression is one of aspiration. Every one who has the rudiments of an imagination in him thinks at once of church towers and bells. Although the foliage is rather coarse, the whole plant is one of the stateliest of perennials, having the same sort of formal beauty as the larkspur, which enjoys a later reign in the same border.

The foxglove is one of the commonest English wildflowers, and there are some localities in America where it has run wild, but not in great masses as in Europe.

The common foxglove has two distinct uses. The typical, or purple-flowered form, is best for wild gardens or for those hardy borders which are not kept up to the highest mark of neatness. In such places the foxglove "self-sows" and finally makes glorious colonies. But for the most refined borders the appropriate thing is the gloxinia-flowered strain—so called because the flowers are larger and spotted in the throat like the gorgeous gloxinias of the greenhouse. For a certain chaste effect the white-flowered variety of this strain (*Digitalis purpurea*, var. *gloxiniæflora alba*) is unrivalled in the genus. It is difficult to keep these refined foxgloves up to their best, and many people complain that their high-priced varieties revert to the original type. The explanation usually is that the uncommon forms have not had the uncommon treatment they deserve, as will be explained forthwith.

The common foxglove is usually a biennial, which sometimes lasts three or four years. and the seeds are generally sown in spring, Unless well cared for, they may not make large enough plants by autumn to live out-



18. The plant known to the trade as Digitalis grandiflora. It is probably D. ambigua

doors all winter, and they do not flower until the second year. The safest way, and the only way to get the best results from the choice strains, is to sow the seed in August or early September, carry the plants over the winter in coldframes, and set them outdoors the following spring, when they will flower splendidly. This saves a year, in a way, making the foxglove a sort of annual. It is worth all the trouble, if any one wants something better than his neighbors.

Of the eighteen known species, not more than eight are worth cultivating, and of course the common one is best. The second place I should give to the woolly foxglove (*D. lanata*), but the whole collection is worth growing (if you like to grow "collections"), and inasmuch as seeds can be cheaply imported from Germany and France the whole set could be had for a dollar.

All the kinds are easily raised from seed. Sow these in a warm bed or flat, and prick off the young plants when two or three inches high into frames, nursery rows, or permanent borders. When once established, the perennial kinds can, of course, be divided with a spade.

When the seed is sown in spring, the plants should be grown one summer in the nursery before being transplanted to the border.

The common foxglove is a very valuable plant for old-fashioned gardens (which are just now the new fashion), for borders and for park bedding. In most cases they should have a good background, such as trees, shrubbery, or a wall. They should not be planted with anything which overtops them, and great care should be taken not to bring them alongside other flowers with dazzling colors, especially reds. Generally they look best when standing rather by themselves, or in borders where they plainly predominate.

19. Spires of the common old-fashioned foxglove (Digitalis purpurea). It grows two or three feet high and has purplish flowers about two inches long. The throat is spotted

INDEX TO SPECIES OF DIGITALIS

Species in **black-faced** type; synonyms in *Italic*; varieties in Roman.

| | |
|---|---|
| **ambigua,** 6. | **lanata,** 7. |
| **ferruginea,** 5. | **Mariana,** 2. |
| gloxiniæflora, 1. | monstrosa, 1. |
| gloxiniæflora alba, 1. | *ochroleuca*, 6. |
| *grandiflora*, 6. | **purpurea,** 1. |
| **laciniata,** 8. | *Sibirica*, 7. |
| **laevigata,** 4. | **Thapsi,** 3. |

HOW TO USE THE KEY

If you have a flower and want to know whether it is correctly named (probably one quarter of the trade names are more or less inaccurate), the "key" will help you to settle the matter in two minutes, without reading eight tedious descriptions which don't distinguish. First choose between the A's, then between the B's, and so on. The indention also helps the eye. A common-sense key for horticulturists should be based on garden characters, such as the color of the flowers, the season of bloom, the height of the plant, etc. But these are often worthless unless checked by technical botanical characters, and these are given in the descriptions below, using as far as possible the English language instead of the botanical.

KEY TO THE GARDEN FOXGLOVES

A. *Color of fls. purplish or white.*
B. *Plant biennial or nearly so.* 1. **purpurea**
BB. *Plant truly perennial.*
C. *Height 1 to 2 ft.* 2. **Mariana**
CC. *Height 2 to 4 ft.* 3. **Thapsi**
AA. *Color of fls. reddish brown* 4. **laevigata**
AAA. *Color of fls. yellow or yellowish.*
B. *Height 4 to 6 ft.* 5. **ferruginea**
BB. *Height 2 to 4 ft.*
C. *Fls. marked with brown.* 6. **ambigua**
CC. *Fls. self-colored.* 7. **lanata**
BBB. *Height 1 to 2 ft.* 8. **laciniata**

DESCRIPTION OF THE SPECIES

1. **purpurea,** Linn. COMMON FOXGLOVE. A biennial herb, sometimes lasting for three or four years, sometimes treated more like an annual. Height 2–3 ft.: leaves rough, slightly downy, long, irregular spatulate: flowers large, about 2 in. long, from white to purple, or yellow, spotted. Var. **gloxiniaeflora,** Hort. is larger, more robust, with larger flowers and longer spikes. This is the best form for cultivation. Var. **gloxiniaeflora alba** is white. Var. **monstrosa,** Hort. is a monstrous variety, having a big bell-shaped blossom at the apex of each raceme.

2. **Mariana,** Boiss. SPANISH FOXGLOVE. Perennial, 1–2 ft. high: flowers rose or reddish; corolla bearded on the lower part inside and marked with brownish-red spots. Spain.

3. **Thapsi,** Linn. MULLEIN-LEAVED FOXGLOVE. Perennial, 2–4 ft. high: leaves oblong, rugose, tomentose, undulate-crenate, decurrent: flowers purple, with blood-red spots. July and August. Western Europe.

4. **laevigata,** Waldst. SMOOTH FOXGLOVE. Perennial, 2–3 ft.: flowers scattered, glabrous, corolla fulvous, reticulated, lip white, ciliated: leaves linear-lanceolate: radical leaves obovate-lanceolate. July. Danube and Greece.

5. **ferruginea,** Linn (*D. aurea*). RUSTY FOXGLOVE. Biennial, 4–6 ft. high: stems very leafy: leaves glabrous, sometimes ciliate: flowers rusty yellow, more or less reticulate, downy on the outside; lower lip of corolla ovate, entire, bearded. July. Europe.

6. **ambigua,** Murr. *(D. grandiflora, D. ochroleuca.)* LONG-FLOWERED FOXGLOVE. Perennial, 2–3 ft. high: leaves ovate-lanceolate, coarsely serrate, sessile, downy underneath: flowers 2 in. long, yellowish marked with brown. Europe and W. Asia.

20. The woolly foxglove, Digitalis lanata. It is the second best species and deserves to be better known

7. **lanata,** Ehrh. (This is perhaps the same as *D. Sibirica.*) WOOLLY FOXGLOVE. Perennial, 2–3 ft.: leaves oblong, ciliate: flowers 1–1½ in. long, grayish or creamy yellow, downy in a dense, many-flowered raceme; bracts shorter than the flowers. July and August.

8. **laciniata,** Lindl. CUT-LEAVED FOXGLOVE. Perennial, 1½–2 ft.: flowers yellow, downy, with ovate bearded segments, in racemes, bracts shorter than the pedicels. June. Spain.

CHARACTERS OF THE GENUS

**Digitalis.** (Family *Scrophulariaceæ.*) A genus of hardy biennial or perennial herbs numbering about eighteen or twenty species, of which only one is commonly cultivated in gardens. Numerous hybrids have been made, some of which are apparently cultivated under species names. Flowers are white, yellowish, or purplish, sometimes spotted, borne in tall racemes; corolla tubular, funnel-shaped, not quite regular, 4-lobed at the top, the lobes unequal and oblique, the upper segment shorter than the lower segment or lip: leaves usually in a large tuft at the base with a few much smaller leaves along the stem.

21. The improved or gloxinia-flowered strain of foxglove, which requires special culture. The best results are attained by sowing in autumn and keeping young plants over winter in coldfram

# Originality in Gardens—By L. H. Bailey

Director of the College of Agriculture, Cornell University

WHY SO MANY AMERICAN GARDENS ARE COMMONPLACE OR UNIMAGINATIVE—SUGGESTIONS FOR MAKING THEM DISTINCTIVE—FIVE GARDENS THAT EXHIBIT CREATIVE GENIUS AND SHOW THE POSSIBILITIES OF ADAPTATION

ORIGINALITY in gardens, as in everything else, may be good or bad. One of the most "original" gardens I ever saw was in a little town in southern Michigan. It was a mere front yard, I suppose not more than fifty feet square. It was an intricate geometrical pattern, as clever as the design of a carpet, with diminutive splashes of gravel, knots of box, and shear-made treelets. It was entertainingly interesting and indescribably ugly.

The genius of true originality is as rare as common sense. To be original and not to be self-advertising may be called the rarest of attainments. In our efforts to be unlike others we become actors; and the pity of it is that everybody knows that we are acting. The true originality is not conscious of itself. Perhaps my reader will be able to make some application of these handsome sentences: if so, he is to be congratulated. I meant only to say that the best originality in gardens consists merely in working out to perfection some idea that will exactly adapt the place to its conditions and surroundings.

The best window-garden I ever saw was made by a woman who probably knew less than a dozen kinds of plants. The place was a three-window bay, of which the center window was left bare of plants. The two side windows were staged with well-grown geraniums, oxalis, othonna, farfugium and two or three other very common things, and festooned with German ivy. The poorest window-garden I ever saw was my own, with plants that every one knew were bought of the florist.

The above example gives the key to good original gardens—the garden must be one's own in the sense that one makes it or directs it so that it shall express the very spirit of the place and of the owner.

Last summer I drove through a beautiful well-wooded road in southeastern England. At one place the rear of a house stood close against the highway, presenting no unusual point of interest to the passer-by. I drove in at the gate, and behold! a garden such as poets dream of! And in truth it is a poet's garden. An open space of velvet lawn, sides piled high with lusty growth of tree and shrub and herbaceous plants, in the distance wide sweep of farm lands, at its back the fine old English residence set with pleasant vines—this was the picture. I thought I had never seen so choice a bit, and yet there was nothing over-wrought or high-strung in it. I saw many beautiful plants, but the effect of the whole was supreme. It was as truly a picture as if the image of it had been put on canvas. If the reader has read "In Veronica's Garden" or "The Garden I Love," he will know what garden I mean.

This garden illustrates a fundamental difference, I think, between the English and the American garden. The Englishman's garden is well-nigh as essential as his house. It is like an extra room to the residence. It is for the family rather than for the public. It therefore works itself into the developing consciousness of children, and garden-love becomes as much a part of the person as books and furniture and music do. With them, the love of the soil is bred in the bone. Englishmen of all classes love farming and gardening. In this respect our conglomerate people are centuries behind the English. The American garden is likely to be all in the front yard. It is usually of the look-at-me kind. It is made for the public to see. This may contribute to public spirit and civic betterment, but it loses in originality and vitality.

One of the most original gardens I know is that of Mrs. Annie L. Jack, in the Province of Quebec. Mrs. Jack is herself a practical garden-lover—this is essential to any originality in any garden. Her original materials were crude and austere—a severe climate, an open piece of land far in the country. It is a farm-wife's garden. Against the low stone house she laid out an acre in parallelogram, with the long way extending from the residence. The ground slopes slightly from the center to the sides. Trees for shelter were planted to the windward. On the opposite side were planted such hardy fruits as would thrive in the climate. Between these for many years vegetables were grown, being gradually forced into the freer inward borders as the trees and grape-vines developed. The center of the place was made a grass space, bold and generous in allowance. The borders are used mostly for flowers, with a liberal admixture of interesting shrubs. It will be seen that the general outline of the garden was rigidly determined; but there has been enough elasticity of details to allow of new planting schemes every year. From first to last it has been an experimental garden. The novelties here find place until they prove or disprove themselves, but there is always such a preponderance of staple things that the garden as a whole is never disappointing. In the secluded and sheltered nooks plants far out of their range may be grown. I saw a thriving small tree of *Magnolia stellata*. The reader will note that this is not a fruit-garden, or a vegetable-garden, or a flower-garden. It is merely a garden, in which all the æsthetic and practical desires may be satisfied. This garden has been profitable. Fruits and vegetables have been sold. The children worked in it and have learned to love it. One of the boys had a "garden" of his own when three years old. I was greatly impressed with the influence that this garden has had on the attitude and ideals of the family. If I am not mistaken, it has had an intellectual influence like a school and a spiritual influence like a church. Perhaps my reader has read homelike pieces of prose and verse that have come from this garden.

In the western part of San Francisco is a garden as unique as Mrs. Jack's, but in every way a contrast to it. It is a garden that appeals to you because of its interesting plants, and not as an organism. Mr. Abraham is a passionate lover of anything that has roots and leaves. He will cherish any sprig from any part of the world, and, what is more, he will make it grow if there is a germ of life left in it. He will put this plant wherever there is an unoccupied inch of ground—alongside a walk, in a corner by a crooked little greenhouse, in a pot in some out of the way place, or in a row in the middle of the lot. Everything is full of plants—roses, palms, fuchsias, cacti, and a thousand things all growing in cheerful abandon. The very lack of arrangement is its charm. If it were "laid out" it would be as uninteresting as an antiquarian shop with mahogany counters and plate-glass windows. The place is the man. I would not change an item of it.

I like best those amateur gardens that seem to be a real part of the home. I have another such in mind; it is in central New York. It is a two-acre space, practically square. It lies a short distance back of the residence, and is bounded on the house side by a high-sheared evergreen hedge. When you visit this family you may sit in the drawing-room or you may walk straight through the house and through a gateway in the hedge and into the garden. There you find yourself in a little world of your own—the hedge in front and double rows of wind-break hemlocks and pines on the far boundaries. The walk leads straight on through well-clipped sodland and between entertaining rows of all manner of pleasant herbs, old and new. You may digress to a seat or two under trees, or keep straight on to a stone seat against a short hedge at the very end of the walk. At this seat, or at the front entrance to the garden, you may take side-paths to the pine-belt, and there walk in a noble avenue made by the duplicate lines of trees. As you turn the farthermost corner in this avenue you come on the vegetable garden, itself occupying one of the quarters of this charming place. You will find no elaborate display, no greenhouse, no corps of gardeners. It is only a quiet garden-space set off from a country of farm land and attached to a refined home.

Pope long ago wrote that the gardener should "consult the genius of the place in all." This is what makes the garden original and worth the while, because the "genius of the place" is different in every garden, and the expressing of it with plant materials portrays the capability and personality of the gardener.

# The Training and Pruning of Grapes—By John Craig

Professor of Horticulture
Cornell University

Photographs by L. H. Bailey, H. B. Fullerton, and Arthur Hewitt

ONE of the earliest recollections of the writer on grape-training matters was associated with a whitewashed board fence, covered or nearly covered with a luxuriant vine-growth thickly interspersed with huge clusters of black grapes. These grapes were in the garden of one of the residents of the little town of Niagara-on-the-Lake. The

23. Fan system—before trimming. This system is chiefly used in sections where vines have to be laid down and covered in autumn

variety was Black Hamburg. It was the wonderment of the community and the delight of the owner, Mr. Pafford, who was then mayor of this somewhat ancient, overgrown Canadian village. Think of growing and ripening Black Hamburg, a hothouse grape, in even the most favorable portion of Ontario! Mr. Pafford selected a warm place and made it warmer by cutting off the north winds with a board wall. He concentrated that still more by whitewashing this tight, high board fence on the south side. His grapes were carefully pruned so that each vine should have just so many fruit-bearing buds, the fruit so thinned that each cane

25-26. Post training. This system is satisfactory only where there is plenty of heat to ripen the grapes, and is best for weak-growing varieties

growing them. Whether the

should have just so many bunches, and the berries thinned in the bunch so that all could develop fully. Hamburg was not the only European grape which Mr. Pafford grew. Golden Chasselas and Black Muscats also decorated his boundary line. Nor did he stop with these. Figs in variety were grown in this wonderful garden. Exhibits of these and of the grapes were made at the World's Fair in 1893 and caused people to open their eyes and ask questions. Mr. Pafford's Hamburg grapes will live in the history of that part of the country.

Of course, it goes without saying that the grapes and figs were taken from the trellis in winter, laid on the ground and well "happed" up with soil, forest leaves and other mulching material.

The amateur can often take advantage of walls upon which to train grapes; he can also use grapes for covering unsightly objects. They are exceedingly tractable and plastic by nature, and accommodate themselves to apparently difficult situations. The training of grapes is one thing. This means the adopting or choosing of a certain method of growing them. Whether the grower shall lead out two arms at right angles, and in opposite directions from the upright stem, and from these direct parallel upright canes; or whether he shall lead out in radiating fashion several canes from the base; or whether he shall lead long canes up over an arbor for the purpose of completely enshrouding it, are matters of training.

The pruning of grape-vines consists in cutting back the right amount of the current season's growth—the amount which experience says a grape of a certain habit of growth and certain amount of individual vigor should respond to properly. The pruning of grapes is a simple matter when their habit of growth is understood. We prune either to check or stimulate vigor, to encourage fruit production, or, on the other hand, to discourage it.

The fruit of all varieties we deal with in the North and East is borne on the wood produced during the current year's growth, and this wood springs from buds produced by last year's shoots. Each bud of last year—except those which come from suckers or base shoots—is a promise of a fruit-bearing shoot, and each shoot is a promise of from two to five bunches of grapes. These promises are not all fulfilled, but they are realized in proportion as the grape is healthy and the season favorable. It is, then, not difficult on a five- or six-year-old grape-vine to estimate with a fair degree of accuracy how many bunches of fruit we may have if we prune to leave fifteen or twenty fruit-bearing buds. With this general proposition in mind, the pruning of the grape is not difficult.

The purposes of training, on the other hand, are to dispose the grape suitably so that it may ripen its fruit evenly and well.

The amateur can afford to train as his fancy dictates. The commercial grower must train to suit his climate, soil, varieties, and the kind of labor which he is obliged to employ. In either case, the object is to produce the approximate number of fruit-bearing shoots the vigor of the variety suggests that it should carry for the best results.

24. Fan system—after trimming. The vine should not be allowed to bear the second year after setting, and only a small crop during the third year

The "fan system" is used most freely where vines are protected in the autumn by laying them down and covering them with soil. The canes are carried up from the ground in a divergent manner, in the form of a fan. The old canes are cut out and removed from time to time as they grow too rigid to allow of easy bending. At the close of the growing season, after the leaves have fallen, the greater number of the canes are cut back to the last bud. A few of the strongest are left, in order to carry the fruit to a greater height upon the trellis.

There is a tendency on the part of the grower who prunes after this fashion to allow too much wood to remain on the plant in the autumn, especially when it is young. The vine should not be allowed to bear the second year after setting out, and only a small crop the third year. I realize that instructions of this kind are much easier given than understood and carried out. A heavy crop of fruit borne by young vines the third year after planting will sometimes ruin the yield for two or three succeeding years, and occasionally destroy the vines. The prospective crop may be more or less accurately estimated by multiplying the number of buds by two; this kind of estimate may be used as a guide in pruning.

The "high renewal" system, or modifications of it, is probably more generally adopted throughout commercial grape sections than any other. It aims at starting the head about two feet from the ground, so that the main branches are tied to the low wire. The vine is usually started the second year with two canes striking out in Y-shape fashion. In the fall of the same year side shoots are cut back closely and main canes cut back to four or five buds each. The third season, three or four

27. Before trimming

28. After trimming

29. After trimming and tieing

The horizontal two-arm system, especially adapted to sections of the country where it is advisable to give the vines winter protection

the strongest shoots springing from the center of the head are allowed to grow. In the autumn these replace the outer arms, and are in turn replaced by them the following season. The aim is, then, to renew the fruiting canes from different parts of the old wood every year. The number of buds to be left will depend upon the strength of the variety and the individual plant. Concord, Niagara and Worden will carry with safety more wood than Moore's Early or Delaware, and this is true without reference to the method employed. As the canes grow they are tied to the wires of the trellis, distributing the foliage as much as possible. It is usually found necessary to go over the vineyard two, three and occasionally four times during the summer.

The "horizontal two-arm system" is especially adapted to sections of the country where it is advisable to give the vines winter protection. Two strong canes are trained in opposite directions. The laterals springing from these are trained perpendicularly. In the autumn the laterals are cut back to short one-eye spurs. When the spurs become weak they are renewed, as is an entire arm occasionally. This system calls for a four-wired trellis, in order to properly tie the strong upright growths. Well adapted to wall or high garden trellis, the three methods of training described thus far are all on the upright plan; in those which follow the vines hang down

The "four-cane Kniffin" is essentially a commercial system and exclusively adopted in field culture in certain parts of New York State. In this system the trellis consists of two wires. The main cane is carried to the top wire and from it an arm is trained each way on the two wires. The side canes are tied to the wires and the lower ends allowed to hang free. Several modifications of this system are in use.

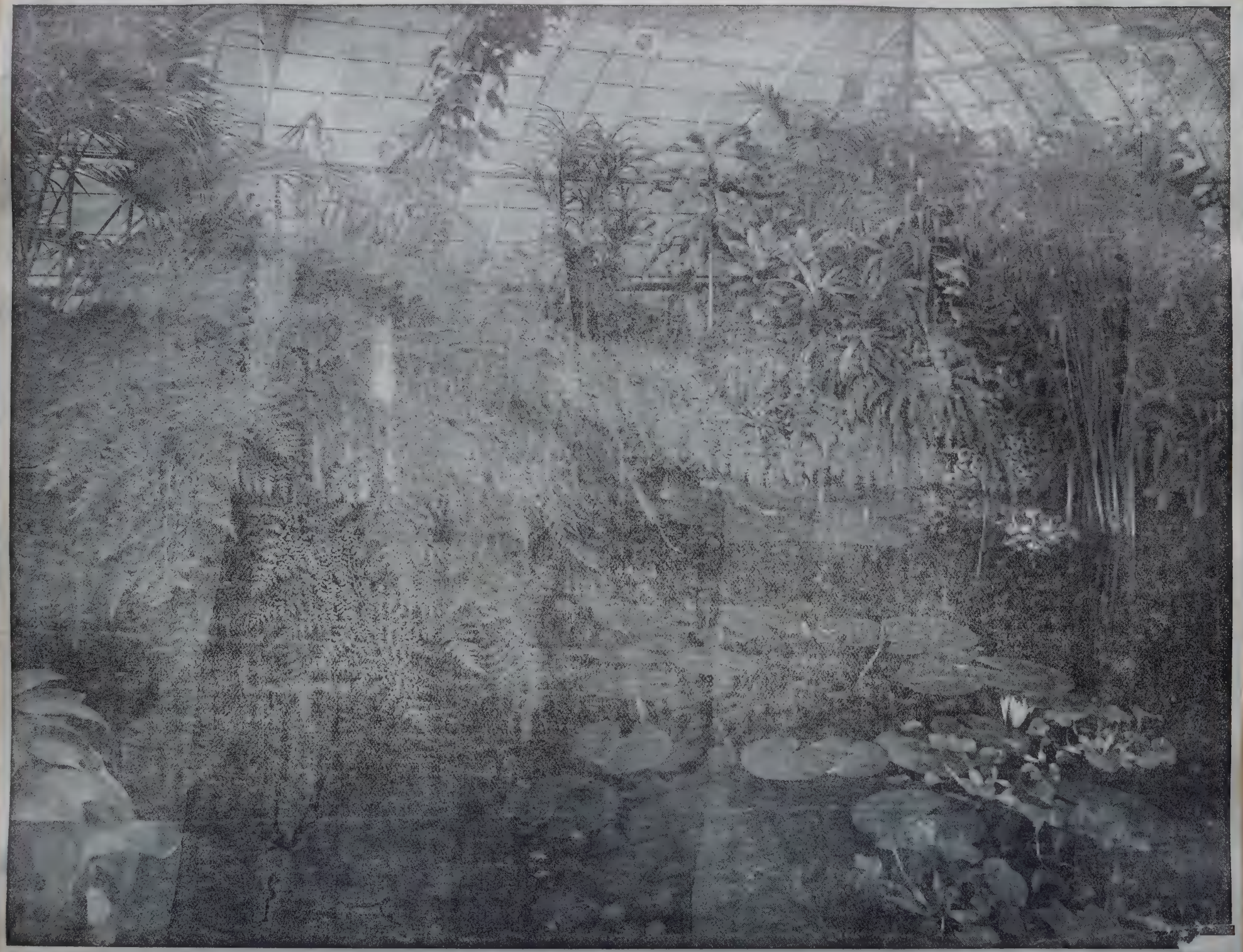
We now come to over-head or arbor systems. In one of these systems (and there are many which may be modified to suit the needs of the amateur) the vines are carried up seven-foot posts and allowed to rest on cross wires, forming in this way a kind of arbor. One plan is to nail a cross-piece to each post at right angles to the pole. This extends three feet on each side. Three wires are stretched on these, one at each end, the other in the middle to the posts. The trellis is thus a horizontal one and six feet above the ground. An unbranched trunk is carried up to the middle wire and the canes spread either side from this point. A T-shaped head is considered the ideal form. Another over-head system is known as the "cross-wire Kniffin." In this a small post six or seven feet high is set for each vine. The tops of the posts are connected by cross wires. The vines are trained up the posts, and on reaching the top four arms are trained outward, one on each wire. In the autumn the arms are cut back to six or eight buds each. The amateur may start two canes from the ground, spreading as they rise, and may depend upon laterals to cover his arbor.

"Post training" is only satisfactory where there is plenty of heat to ripen the grapes, and gives fullest satisfaction with weak-growing varieties. Four- or five-foot stakes may be used. Two or three canes are trained up each year from the ground. It is strictly a renewal plan. Much summer pruning and pinching are required to regulate growth. But on the other hand, the vines may be tucked in four by four feet apart. Delaware, Golden Drop, and Campbell's Early can be grown on posts with some satisfaction.

Pruning of the annual kind may be done after the leaves are killed by frost or the wood is thoroughly ripened. When the vines are taken off the trellis, as in 30-degree-below-zero sections, the pruning is done just before laying the canes down in autumn. Where the vines do not need winter protection, the pruning may be done any convenient time during late fall or winter. It should not be deferred till the sap flows in spring, as vines pruned at this time are often weakened by excessive bleeding.

It is always desirable to remove the shoots that spring from or near the base of the vine, except when they are required for a special end. These shoots are quickly broken out, or nipped off when soft and succulent. A certain amount of shortening back is also desirable. This should not be done too early in the season. If pinched early in the growing season, a great mass of laterals is produced and the amount of work very much augmented.

30. An open arbor. The vines are trained upward in the most direct manner. A single stem from which laterals are carried off may be used, or two or more stems may be started from the ground



31. A HOUSE FOR WATER-LILIES, WHEREIN A BUSINESS MAN MIGHT GROW THE KINDS THAT OPEN IN THE EVENING

# From Dining-Room to Tropics—By Frank H. Presby

**A NEW IDEA FOR AN INDOOR GARDEN OF NIGHT-BLOOMING WATER-LILIES WITH WHICH TO SURPRISE ONE'S GUESTS AFTER DINNER**

I DO not know of a more dreary place for the true plant-lover than the usual stereotyped conservatory. Palms, crotons, rubber plants, pandanus, and the like, are all very well in their way, but any one can see them in a better condition in any florist's store or greenhouse. Even when blooming plants, grown elsewhere to the flowering stage, are brought in to give color to such a conservatory, you are likely to have something more or less conventional and unimaginative. When I have a few thousand dollars to spend, I expect to build a conservatory that will be very different from any I have ever seen. My plan will be, by one step, to transport you from the Arctics to the tropics. It will open from my dining-room, but the door leading to it will be locked during dinner, with a curtain in front of the door so that no one would suspect it was there. After dinner, when the cigars have been passed, the curtain will be drawn aside and a button touched will light up the conservatory. When the door is opened and we leave the dining-room my guests will find themselves in the tropics. The walls will be covered with ferns, bunches of bamboos and papyrus will stand in the corners, and the middle of the house will be given to a large tank filled with the tender night-blooming lilies, the varieties that open soon after sunset and remain open until noon the next day. Many varieties will open and close for four or five days in succession. The water in the tank must be heated to give results, and the plants can be put in tubs.

I know what varieties to get, for I visited the leading dealer in aquatic plants when the water-lilies were in bloom and made note of the kinds I liked best.

The reds I want are Frank Trelease and Rubra rosea. Of the pinks, I like best O'Marana and George Huster; of the whites, I prefer Jubilee and Dentata. Deaniana and Kewensis, two light pink varieties, are also very good. There are no yellows.

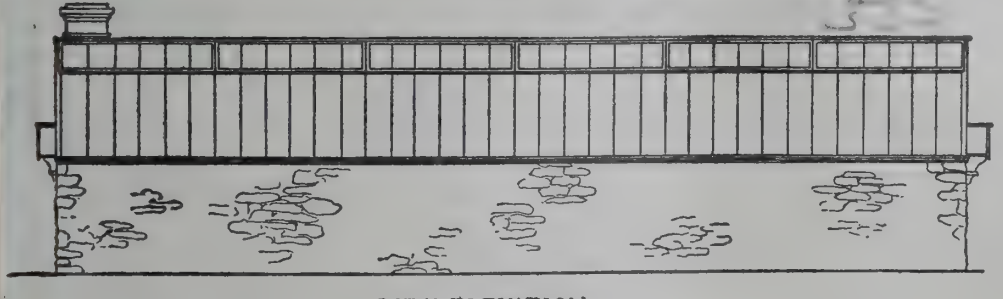
I plan a house about 50 x 20. The walls will be of brick about six feet high, with an inside lining of tuffa stone from Berea, O. This stone is rather soft when first taken out, but hardens after it has been exposed to the air a short time. The surface is very like coral and it can be found in large as well as small pieces. It will be laid up against the brick wall with cement mortar, leaving many pockets for planting with ferns. These, with the bamboos, papyrus and water-lilies, will be all the planting. I expect the ferns to "self-sow" and multiply without any care on my part. Eventually they should cover the walls with a living mass of green.

The greatest cost of running such a house will be the heating. The cost could be reduced by putting the boiler in the cellar of the house and thus do away with the chimney and boiler pit. After the ferns are planted they will flourish for many years, and the first cost of the water-lilies would not be a large item. Japanese gold-fish would thrive in such a pool. The house must be well-lighted to show the color of the flowers. I have a notion or two about a novel and effective way of lighting such a house. One of the leading firms of greenhouse architects has made the following estimate of the cost of the water-lily house erected complete for me, at Montclair, N. J.:

| | |
|---|---|
| The glass roof | $1,025 |
| The masonry | 1,800 |
| Heating plant | 575 |
| | $3,400 |

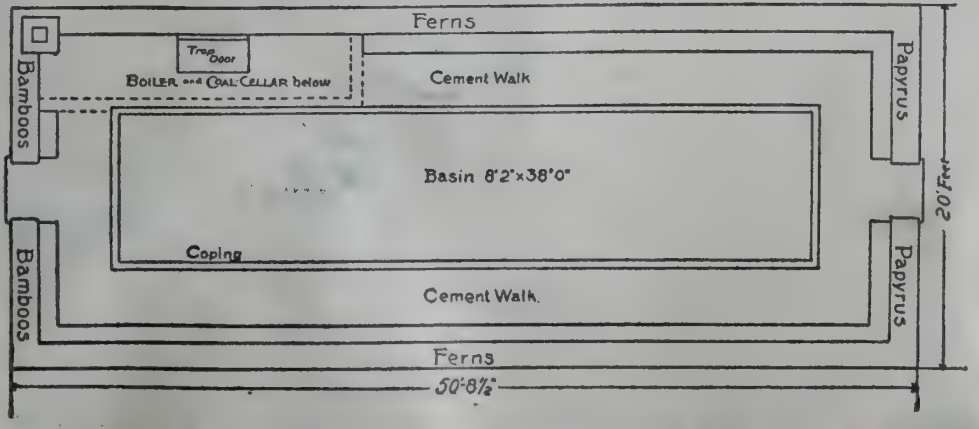
The woodwork would be clear, air-dried, red Gulf cypress. There would be two lines of roof-ventilating sash, each line operated independently. The masonry work would be of stone, bedded in concrete. The boiler-cellar would be about 18 x 4.

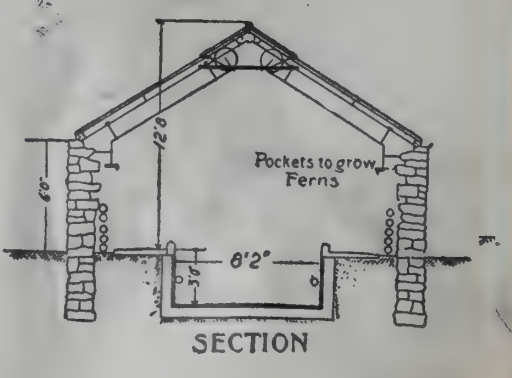
A small outdoor water-garden is just the thing to make one's place different from the general run of commonplace gardens. Why not try some hardy water-lilies this year? I have two pools in my garden, and both are a source of great pleasure to my family and myself, as well as the stranger in my gates. One is planted with water-lilies and the other with lotus. In the former we have flowers from early spring to late autumn. The colors are white, yellow and pink. The lotus blooms for a period of about two months, and I have nothing in my garden to compare with its flowers in beauty. If you are a lazy gardener, try water-lilies. They require no watering, when everything else is drying up, and no weeding at any time. They multiply so fast with me that most of them have to be dug up every spring, and the increase sells at good prices. Do not grow geraniums, cannas, coleus, and the like, when so many beautiful plants can be grown so different from your neighbors.



SIDE ELEVATION

END ELEVATION

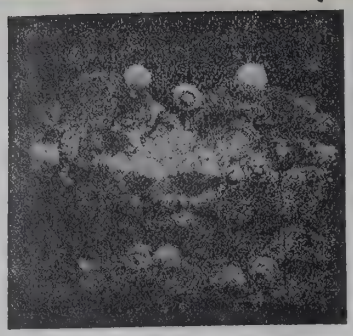


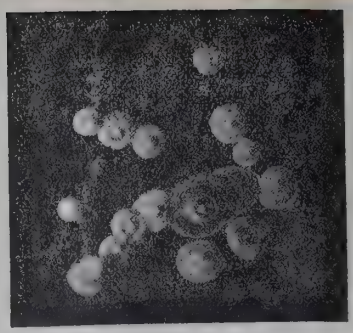

SECTION

32-35. Plans of the novel greenhouse for water-lilies which can be attached to a house already built

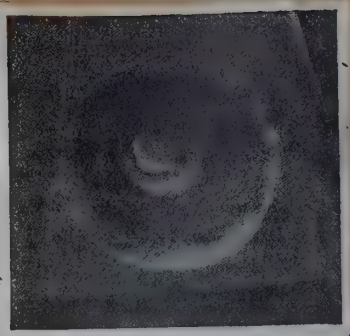
36. Several young scales in the black stage. (Much enlarged)



37. Adult female scales and young scales in the white stage. (Enlarged)



38. Male scale and young scales in the white stage. (Enlarged)



39. Adult female scale. (Greatly enlarged)

# How to Kill the San José Scale—By E. P. Felt

State Entomologist of New York

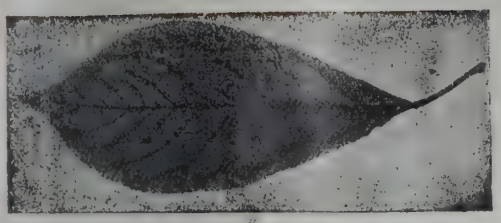
IS THE SAN JOSÉ SCALE IN YOUR NEIGHBORHOOD?—IF SO, YOU WANT TO DO SOMETHING ABOUT IT AT ONCE!—THE GREATEST INSECT PEST OF MODERN TIMES

THE San José scale (pronounced *Hozay*) is widely distributed in America, and especially in the vicinity of some of our larger cities, particularly New York. Its destructive powers are greatly increased by its small size and obscure color, which combine to render it extremely inconspicuous, and portions of trees are frequently covered by the pest or limbs killed before the owner is aware of any trouble.

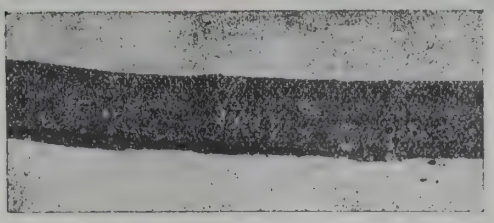
This species may be distinguished from all others by the form of the female scale, it being grayish or yellowish gray, about one-sixteenth of an inch in diameter, and with a yellowish central elevation representing a cast skin. There are several allied, nearly circular scales, with the elevation or nipple a little to one side of the centre, which somewhat resemble this species, but fortunately these very rarely occur in sufficient numbers to cause appreciable damage. Young San José scales are dark gray, sometimes almost black, with a distinct central nipple bounded by a grayish ring. Both adult and young when located upon green twigs, leaves or fruit produce a very characteristic purplish discoloration in their immediate vicinity, and for this reason the pest is easily recognized in mid-summer upon foliage and fruit, since it has a marked tendency to establish itself upon the latter, particularly apple and pear. This characteristic stain also occurs in underlying green tissues, and may be exposed by cutting the infested bark. Any abnormal, rough, scurfy appearance upon twig or branch should arouse suspicion. Sometimes this is due to abnormally developed or peculiar lenticels, and occasionally fungi produce very much the same general appearance as a bad infestation of San José scale. If living scale insects are present, the drawing of an inclined knife-blade or even one's thumb-nail over the surface will cause the exudation of a yellowish fluid from the crushed bodies of the underlying insects. There are two native species which are frequently confused with the San José scale, though both are very different. One, the apple-bark louse, has a brown, elongated, slender, pear-shaped, usually slightly curved scale about one-eighth of an inch in length. This species occurs upon many trees and shrubs, and winters in the egg. The other, the scurfy bark louse, has an irregular white or dirty white scale about one-tenth of an inch in length, which expands irregularly from a slender, yellowish tip. This, like the apple-bark louse, winters in the egg and occasionally forms a thick, dirty white incrustation.

40. Spraying a Japanese quince with a little broom

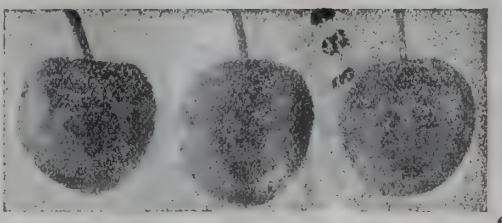
An understanding of the life-history of this insect is essential to its intelligent control, otherwise our efforts may be sadly misdirected. The winter is passed by this insect in a half-grown condition. The overwintering scales are small, black, circular objects with a central nipple and one or two grayish rings. Vital activities are nearly suspended during the winter, being resumed with the approach of warm weather, and the insect, lying beneath its sheltering scale, begins once more to drain the tree of its sap. This is accomplished by means of a long, slender proboscis composed of several thread-like setæ, which are thrust into the bark and serve as a tube through which the pest may draw its nourishment from the underlying tissues. The first outward indications of life are seen in the appearance of the winged males, slight, reddish insects with two membranous, almost veinless wings, about the middle of June in the latitude of New York. The minute, yellowish, crawling young, appearing for all the world like animated specks, escape from under the protecting shelter of the mother about this time, and for a period of approximately six weeks the females continue to produce young, each averaging about four hundred, or from nine to ten every twenty-four hours. The new-born wanders forth in search of a favorable place to establish itself, and within relatively few hours (on an average a little over twenty-seven) settles at some convenient point and works its slender, hair-like beak through the bark. If it be a female, it never moves from this spot, and soon loses legs, antennæ and eyes and becomes virtually an animated pump drawing the vital fluids from its host. The development of the protecting scale begins even before the young has selected its feeding-place, as very minute, waxy filaments which spring from all parts of the upper surface of the body, rapidly becoming thicker and slowly matting down to form the circular, white scale with a depressed ring and central elevation. These insects are then in what is known as the white stage, and in a few days the covering scale turns to a black or dark color with one or more lighter rings. The female scale insect requires about thirty days to attain maturity, and the male from twenty-four to twenty-six; thus the round of life may be completed in from thirty-three to forty days. Detailed studies made at Washington show that four entire generations are normally developed, and that under certain conditions, there may be a partial fifth. The fecundity of the insect, in connection with its ability to produce a number of generations annually, results in an enormous increase, and in the vicinity of Washington it is estimated that a single individual under favorable conditions may in one season become the progenitor of over three billion. It is no wonder that many trees succumb to the fearful drain. The short period necessary to complete the life cycle, and the extended time during which each female produces



41. The scale follows the veins. (About natural size)



42. Plum twig badly infested. (About natural size)



43. Infested plums, showing reddish discoloration

young, results in almost continuous breeding from the latter part of June till into October and, under certain conditions, November and even December. The period of activity is longer in the southern than in the northern States, and the destructiveness of the insect correspondingly greater. This species has been recorded upon a large number of food plants, but is very injurious to comparatively few. The fruit-trees—peach, pear, plum, cherry and apple—are preferred in about the order named. Currant-bushes are very subject to injury, and among ornamentals none are worse affected than Japanese quince. Lilacs, snowberry, willows and some other ornamentals are also liable to serious injury.

The method of spreading is of considerable importance, particularly in places where the scale has not become established. It is conveyed long distances almost entirely upon plants. The danger of budding from infested stock is greater, since the scale has a marked tendency to gather about buds and other rough portions of the bark. Aside from this, the pest can spread only by the crawling young being carried either by birds, other insects, winds or animals. The first three can hardly be controlled. Great care should be taken during the breeding season not to allow men and teams which have been working among infested trees to go directly to uninfested ones, since the scale is easily conveyed in this manner.

This insect is difficult to control not only because it is exceedingly prolific, but largely on account of its ability to withstand the action of various insecticides, and particularly because of its extended breeding-season. It is a sucking insect, and, as stated above, draws its nourishment from underlying tissues, consequently the application of arsenical poison or any similar material which lies upon the surface of the plant and must be taken into the stomach has practically no effect. It can be controlled only by the use of some substance powerful enough to penetrate the scale and destroy the underlying insect. A large number of materials have been employed for this purpose. The nearly naked, crawling young are unprotected, and on that account easily killed. The great difficulty of attempting to check the insect in this stage is that young are produced during an extended period, and therefore the best results have been obtained by the use of materials strong enough to penetrate the sheltering scale of the adult, and such substances are so strong that they can be applied to deciduous trees only when in a dormant condition. The best results, as a rule, have been obtained by early spring applications, preferably deferring the treatment till shortly before the buds begin to open.

A wide variety of materials have been employed, prominent among which may be mentioned whale-oil soap solution, kerosene emulsion, crude petroleum and its emulsions, and the lime-sulphur washes. The whale-oil soap solution at the rate of two pounds to one gallon of water is fairly effective though costly, and in commercial orchards has quite generally given way to other materials. Both kerosene and crude petroleum, in pure and mechanical emulsions, have been employed to a considerable extent, but in most cases they likewise have been displaced by the cheaper, safer lime-sulphur washes which, as a rule, have been most successfully employed. There are many formulæ for these latter, some of which have been used for years and others developed within twelve months.

A thoroughly safe, well-tried wash may be prepared as follows: Take 20 pounds of lime and 15 pounds of flowers of sulphur; bring a few pails of water nearly to a boil in a large iron kettle; add the lime, following immediately with the sulphur; stir so as to intimately mix, and keep the combination boiling rapidly for at least thirty minutes, then remove and strain through a wire screen such as ordinary mosquito-netting, and dilute to 50 gallons with cold water. This is one of the simplest methods of making the wash, and when properly prepared and very thoroughly applied the results have been most gratifying, as a rule.

This material can be made in a similar manner by steam boiling—that is, forcing a jet of steam into a barrel containing the materials, and this method of preparation is a very convenient one for those possessing steam-engines or desirous of making large amounts of the wash. Some lime-sulphur washes do not require any boiling water, and a method developed by Professor Lowe, and subsequently used by Professor Parrott, calls for the above-mentioned quantities of lime and sulphur and about 4 to 6 pounds of caustic soda to 50 gallons of water. The lime is slaked preferably with warm water, and while the reaction is in progress the sulphur, which has previously been made into a thin paste, is added and thoroughly mixed with the slaking lime. The caustic soda is then put in and water supplied as needed, the whole being stirred thoroughly. After the chemical action has ceased, the mixture may be strained and diluted as stated above.

44. Spraying San José scale in Mr. J. H. Hale's orchard in Connecticut. Running the mixture into the pumping barrel from the supply platform

In spite of the poor results reported from applications of lime-sulphur washes during the past season in New Jersey, we feel that in most sections of the country this material is by far the best for controlling this pernicious insect. It is not only cheaper, but when thoroughly applied appears to be fully as effective as any other, and there is far less danger of injury to the trees. The kerosene limoid spray may possibly be equally valuable, but it cannot be recommended for more than experimental work till it has been further tested. The question of what apparatus to use for spraying is also important. Select a stout, preferably iron pump, with broad valve-seats, because high pressure is needed and lime-sulphur washes are extremely caustic and therefore injurious to any but well-made pumps. A power outfit is advisable wherever extensive applications must be made. Ten to twenty or thirty feet of hose and a six- to eight-foot extension nozzle may be classed with the necessities. Most essential of all is a thoroughly reliable man to hold the nozzle, because, unless the trees are very well covered with the spray mixture, poor results are likely to follow. It is advisable, before spraying, to cut the trees back as much as possible, and in sections where the scale is prevalent, low heading will doubtless become popular because of the greater ease in fighting this pest. Another important point is to spray with the wind whenever conditions permit, making the application on the other side of the trees when the wind is blowing in an opposite direction, since it is almost impossible to thoroughly spray a tree, particularly a large one, without the aid of a favorable breeze. Spraying outfits are rather expensive, and the man with a few trees will undoubtedly find it much cheaper to hire his spraying done; and in some cases, at least, co-operative neighborhood work will prove the most economical and satisfactory method of controlling this dangerous pest.

The article on "Spraying Tall Shade Trees" in the February number of *Country Life in America* shows the kind of power spraying outfits used by progressive park superintendents, describes a new way of making a living out-of-doors, and the new type of neighborhood organization to get the best spraying done for the least money.

# The Best Evergreen Trees f

## WHY WE WASTE THOUSANDS OF DOLLARS A YEAR IN PLANTING WHICH HARDY CONIFERS COME—THE IMPORTANT KINDS FROM

By HEN

THE reason why people throw away thousands of dollars a year in buying evergreens that die or become ragged [illegible] The great bulk [illegible] unsatisfactory [illegible] English [illegible] Scotch [illegible] from [illegible] to say this to an audience [illegible] a thousand horticulturists, your voice would be drowned in a storm of mingled howls and cheers. Every intelligent European emigrant to this country knows those trees. They are famous in Old World literature and dear to the hearts of the peo[illegible] sturdy, fast-growing trees, and [illegible] has them, because the [illegible] them and they are profitable. [illegible] can tell you, off hand, [illegible] they have been successful [illegible] or later, they and all other [illegible] are bound to be more or [illegible] It is simply a question [illegible] a chance for debate, be[illegible] considers that he gets [illegible] of a tree for its beauty [illegible] But [illegible] wants [illegible] for permanent comfort [illegible] and privacy [illegible] are too [illegible] Norway spruce [illegible] for the popular notion [illegible] whenever evergreens [illegible] by all become ragged [illegible] and therefore [illegible] A [illegible] tree [illegible] style [illegible] which [illegible] more [illegible] than the Scotch and Austrian [illegible] localities, and the white [illegible] the best of all; while the [illegible] stands heat and [illegible] better [illegible] nor or indeed any [illegible] English yew and Irish juni[illegible] hardier than the other [illegible] Japanese yew and American [illegible] the same types of beauty and [illegible]

### A DECLARATION [illegible]

For every [illegible] dear to the Amer[illegible] of the same [illegible] that has the same style of beauty [illegible] better adapted to our climate. In many cases, the two species will be so much alike that the ordinary person can [illegible] them apart. We declared our political independence of [illegible] and it is high time that we declared our horticultural independence of Europe. We must recognize that the climates of Western Europe and Eastern North America are fundamentally unlike, and we shall never make this country one great garden of Europe [illegible], and meanwhile we have squandered millions of dollars on European evergreens, roses, and other plants that feel orphaned when they get a thousand miles away from the Gulf Stream. The trade and social affinities of the northeastern United States are with Europe, but our climatic affinities are with northern Japan, Korea, and China; with the eastern slope of the Rockies; and with Asia Minor. Those are the regions of hardy evergreens. The chief regions of half-hardy evergreens are Europe and California and the southern slope of the Himalayas.

### TWO STRIKING EXAMPLES

The Douglas spruce is hardy only when raised from seeds gathered in the mountains of Colorado. Many people complain that this tree is tender in the Northeastern United States. This is because the tree was first discovered on the Pacific coast, whence the seeds were brought to Europe and thus got into the nurseries of the world. The regular course of horticultural trade has been for our nurserymen to get their stock of trees or plants that are native to America, not from the places where they grow wild, but from European nurseries. It was supposed that none of the Pacific coast trees would ever grow to any size in the East, and it was a great day for American horticulture when Parry, the botanical collector, discovered the Douglas spruce growing wild in Colorado. All the hardy specimens of Douglas spruce in cultivation are descendants of Rocky Mountain stock, and it is important to note that the stock must have been gotten from the mountains, not the valleys. This one bit of information may save a man many dollars and much disappointment.

Another instructive example is the case of the juniper. Ordinarily, the same species of evergreen does not grow on both sides of the Atlantic, but the common juniper (*Juniperus communis*) grows nearly everywhere in the north temperate and subarctic zones. In every distinct climate, however, it assumes a slightly different form. Some of these forms are the Irish, the Swedish, the alpine or Siberian, the American, the hemispherical, the pendulous, and the typical European form, which is more columnar than ours. Ordinarily, the differences between a European conifer and its American representative are the differences between two species of the same genus, and it is fair to use this fact as a rough measure of the differences in climate that have produced these results; but in the junipers, the difference is considered to be only that between varieties of the same species. The practical lesson for us is this: Instead of the Irish juniper (*Juniperus communis*, var. *Hibernica*), plant the American juniper (*J. communis*, var. *Canadensis*).

### THE TWENTY-FOUR HARDIEST EVERGREENS

| *Northeastern U. S.* | *The Far East* |
|---|---|
| White pine | Korean pine |
| Pitch-pine | Small-flowered pine |
| Red or "Norway" pine | Japanese umbrella-pine |
| White spruce | Short-bracted fir |
| Red spruce | Veitch's fir |
| Hemlock | *Picea Ajanensis* |
| American arbor-vitæ | Lace-bark pine |
| Red cedar | Japanese yew |
| American juniper (or ground cedar) | Japanese arbor-vitæ |
| *Rockies* | *Asia Minor* |
| White fir | Cilician fir |
| Engelmann's spruce | Nordmann's fir |
| Douglas spruce (tender from California) | Oriental spruce |

### SOME FAMOUS TENDER EVERGREENS

| *Europe* | *California* |
|---|---|
| English yew | Redwood |
| Irish juniper | Big tree |
| *Africa* | Monterey cypress |
| Mt. Atlas cedar | Lawson's cypress |
| *Himalayas* | Douglas spruce (hardy from Colorado) |
| Deodar | |
| *Australia* | *Chili* |
| Norfolk Island pine (*Araucaria Bidwillii*) | Monkey-puzzle |

### THE NINE ABSOLUTELY SURE KINDS

Seven years ago, in the last number of *Garden and Forest*, Professor Sargent published his memorable series of papers on conifers which has ever since been considered a sort of horticultural gospel by students of evergreens. He declared that there were only twelve species of conifers that had shown themselves able to grow to a large size and preserve in cultivation here their mature beauty for a long period. These are the white, red, and pitch-pines, the white and red spruce, the red cedar, the juniper, the American arbor-vitæ, the hemlock, and three deciduous species—the European and American larch, and the ginko. Inasmuch as the last three have no more value for comfort and privacy than any other deciduous trees, they have been omitted from the list of the twenty-four hardiest evergreens given above. The rest of that list of twenty four is composed of species which Professor Sargent said had stood the test successfully for twenty-five or fifty years, which, however, he did not consider a long enough period. The nine sure kinds are all American.

### WHY EVERGREENS DIE

Thirty below zero is not nearly so deadly to evergreens, or anything else, as alternate freezing and thawing. No man and no

# r the Northern United States

## IE WRONG KINDS—THE SIX CHIEF OFFENDERS—THE REGIONS FROM EACH COUNTRY—WHEN AND HOW TO TRANSPLANT EVERGREENS

Y HICKS

plant enjoys being wakened a dozen times during the course of a nap. But these interruptions are much harder on evergreens than on deciduous plants, because the former have an immense mass of foliage to support all winter. Just as soon as the sun comes out strong, the leaves start to "transpire," *i. e.*, evaporate moisture (though less actively than in spring), and if the roots are frozen they cannot supply moisture fast enough to take the place of what the leaves give off. That is why evergreens so often look yellow and sickly in March. Wind often dries out soil or foliage faster than sunshine, and, broadly speaking, our winter winds are from the continent rather than the ocean, and, therefore, dry. The other great cause of mortality among evergreens is summer drought.

### HOW TO MAKE THEM LIVE

The bother and expense of watering trees can usually be avoided, except, of course, at planting time. The soil generally has enough moisture; the only thing to do is to prevent its escape, and that is what a mulch is for. Put six inches of coarse litter around the base of every newly planted evergreen. This prevents unnecessary evaporation from the soil. Nature does the same thing. Go into any pine grove, and you will see the forest floor carpeted with needles. These dead leaves, which the evergreens have shed, prevent the moisture from rising out of the ground, save through the trees themselves.

### WHEN TO PLANT EVERGREENS

The common notion about planting evergreens without balls of earth is that the best time to set them is in April or May, when the soil is warm enough for the roots to begin action at once and before the new growth is long enough to wilt. The bulk of the planting is done then. A second season for planting evergreens is in August or September, so that the roots may become established before winter. But if an evergreen has a large ball of earth, full of feeding roots, and is carefully wrapped with burlap or something to protect the fine roots from the air, it can be moved any month in the year. This may or may not be more expensive, and the larger a tree, the more important it is that it be "root-pruned" before being taken up. To "root-prune" a tree ten to thirty feet high, draw a circle three to ten feet in diameter around it, dig out the earth to the width of two spades, cutting off and bending around the roots, cut partly under and cut the tap-root if the tree has one, fill the trench again, and leave the tree for a growing season, or until it has been accustomed to the new conditions and filled the ball of earth with fine new roots.

### TRANSPLANTING NATIVE EVERGREENS

When you dig an evergreen in the woods or preferably in the open, to take home, try to get as large a ball as you can possibly carry. Use a long nursery spade and dig in a circle with the edge, not the front, toward the tree. Do not try to cut under until you have a good, deep trench all dug. If you catch hold of the tree and jerk it over, you will split the roots. The larger root-ends should be trimmed off smooth. Wrap the ball tightly with burlap. It is far more important that the roots of evergreens should be protected from the air than those of deciduous trees, because the resin of conifers dries after a few hours' exposure to the air, and does not readily circulate again.

### MOISTURE-LOVERS AND DROUGHT-RESISTERS

In general, there are two types of roots among evergreens—the swamp type and the upland type. The arbor-vitæ is easy to transplant, because it grows where its roots have plenty of moisture, so that they do not travel far or deep, but make a compact ball of feeding-roots near the trunk. A pitchpine on a gravelly hilltop has to send its roots wide and deep to get moisture, and anything that makes a few large, thick roots is hard to transplant successfully. All the evergreens that the nurserymen sell in great quantities are fast-growing trees with the swamp type of roots, and Holland has the ideal moisture and labor conditions for growing young evergreens from seed and cuttings by the million. Unfortunately, many of these kinds are short-lived. For the most permanent features of an American landscape, we must look toward slower-growing species which generally have a deeper and wider-reaching root system. Every time I go to New York I see suburbanites buying Holland-grown evergreens of species that are sure to get ragged in a dozen years or die. They look so pretty in the auction rooms and by the ferries that it is impossible to resist them, and a man who never bought a tree before will buy an evergreen without knowing its name or caring. Lawson's cypress (*Chamæcyparis Lawsoniana*) must have been created to make all these people happy. It is a fast-growing, Pacific-coast species which the European nurserymen dote on. It has made over sixty varieties for them, including many variegated sorts, and is grown by the million in the Netherlands, where labor is cheap. These cypresses may last a few years on the surburban lawn, or a winter in tubs or hotel window-boxes, but they have not forgotten the land they came from. On the Pacific coast, the Japanese current warmed their ancestors; in Holland, they felt the influence of the Gulf Stream. After a few experiences with a New England winter, they generally give up the ghost. It pays to know what you are buying.

### HOW TO HAVE WHAT YOU WANT

But life would be a poor thing if we never took a chance, and it would be a cruel and sordid thing to look at evergreens only from a utilitarian standpoint. Some conifers are so beautiful—the retinosporas, for instance—that we are bound to have them anyhow, whether they last five years or fifty; and some of us can stand it even if a tree does get somewhat ragged. The important and cheerful fact is that if a man has a good wind-break, he can grow to perfection almost anything within reason, and a good many things he could not reasonably expect. Perhaps the most beautiful and convincing proof of this that has ever been offered the American public is the case of the superb collection of evergreens at Dosoris, Long Island, which was begun by the late Charles A. Dana, editor of the New York *Sun*. In the February number of *Country Life in America* there are pictured seven famous trees of warmer climes, including the big tree of California and the cedar of Lebanon, which are growing at Dosoris behind a wind-break without any other protection. To my mind this is the strongest argument of all for having a windbreak, for a home that is merely comfortable is not much of a home, after all. We want beautiful homes, too.

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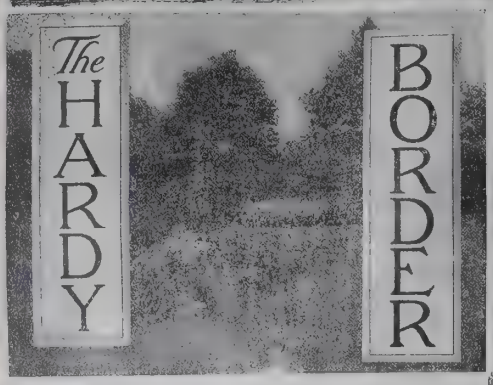



## Why Hardy Plants Die in Winter, and How to Save Them

A CONTINUOUS blanket of snow that comes early and remains in its original state until the fickleness of spring is past is the ideal winter protection for so-called hardy perennials. Should a February's sun melt it into slush, and a subsequent cold spell convert the slush into ice, many plants, as well as the grass on low spots on the lawn, suffer. In some sections of Maine, Vermont and the Canadas the ideal protection generally exists, and the sweet William, Gaillardias, double-flowering sunflower, the cushion pink (*Armeria maritima*), and shallow-rooted plants like the cardinal flower (*Lobelia cardinalis*) come out of the winter in excellent condition, whereas in less favored situations, such as skirt the southwestern shores of Lake Michigan, they would perish unless artificially protected. Near Chicago the snow seldom remains over a month's time, and in some winters the opportunity for a single sleighride is a rare treat.

Toward spring is the critical time when the most damage is likely to occur from alternate freezing and thawing. If the effect of the sun's rays is excluded the danger is lessened. This applies not only to herbaceous perennials, but also to the wood of climbing roses and the flowering buds of Forsythias, *Prunus triloba*, and the rose-flowered Japanese weeping cherry. Some plants will perish in wet, heavy soils that would winter safely in the same climate if in light, well-drained sod.

In our hardy borders we have plants from all corners of the earth, many coming from sections where conditions of soil and climate are at variance with those of their new home. Examples of such plants requiring special treatment are the rare and beautiful *Stokesia cyanea*, from the sandy pine woods of Georgia, which, while hardy as far north as Boston in congenial situations, is not so with me in our clay loam, unless moisture in winter is kept away from the roots. I carry it safely by placing a hotbed frame over the group, filling it with dry oak leaves and covering with a sash or board shutter. The cardinal flower (*Lobelia cardinalis*) is treated in the same way. While this plant is native, and winters safely in the damp but heavily grassed prairie, where the network of roots of the surrounding grasses holds down those of the cardinal flower, it is very likely to be lifted out of the soil in an open bed. Inverted sods laid over them often bring them through safely.

An open, wet winter often kills the Gaillardia—a native of Texas—but by planting in a well-drained soil, covering with strawy manure or dry leaves, and placing over them a waterproof wooden shutter so slanted as to shed water from the bed, I bring them through in good condition. Often when the crowns appear injured they will break out from the roots and form new plants. It pays to have patience with plants of doubtful hardiness, instead of discarding them if they look weak or ragged. Have a reserve garden for such things and for every plant until you have lived with it a year and know its color, season, and good and bad points. Then you can place it where it will appear to the best advantage.

Don't be in a hurry to cover. A good frost, or even a hard freeze, will not injure them. Let your neighbor cover first, so the field mice, seeking cozy winter quarters, may nest in his coverings, and nibble at his bulbous plants instead of yours. The last of November or even later is early enough.

In the meantime, if possible, gather up the fallen leaves in the woods, preferably oak, and store them under cover. Cut down the eulalias, and eventually use them in place of straw in protecting climbing roses and tender shrubs, or even spreading them over the strawberries. Save them in the spring and store them for another season. It pays to grow some in the kitchen-garden for covering purposes alone, and it is cheaper than buying straw.

If you grow the pennisetum as a border to a canna bed or for decorative purposes, pull them up, roots and all, and use them over any group of early blooming bulbs. They afford good protection, and leave the bed free from litter when removed.

Cut to within a foot of the ground the vines of *Clematis paniculata* or any of the small-flowered forms of clematis to use in protecting climbing roses, laid-down grape-vines and raspberry canes, or to place over a bed of any perennial possessing an evergreen foliage like the perennial poppy.

Cut close to the base all perennials that naturally die back, saving the stiff woody tops, such as the asters, for use over evergreen foliage. Spread short half-rotted manure all over the bed, working it well up to the necks of those retaining their foliage.

Cut, in September, or before the foliage matures, so it will be retained all winter, short boughs of oaks or evergreens and insert the butts between plants of moss-pink (*Phlox subulata*), hardy pinks, or any low-growing evergreen plant. This keeps the sun off, catches the drifting leaves, and affords a light, well-ventilated protection.

Cover early-blooming bulb-beds with eulalias, pennisetum, long straw or hay—or strawy manure with the droppings shaken out. The ground being frozen all winter and up to the time of removal, no manurial leaching may be expected, and this covering comes off with but little litter to remove from among the peeping, brittle points of growth.

For narrow borders of any low-growing evergreen plants or for the fall-produced tips of the Spanish iris, and even for newly planted rows of strawberries, inverted V-shaped troughs placed over them is ample protection.

When spring comes, remove the rougher material and fork in the finer, but in large beds of phlox or any thick-foliage plant, push back out of sight, instead of forking in. It will act as a mulch and help retain the moisture.

If you failed to mulch your border and strawberry bed, do so now. February is a month of alternate freezing and thawing.

Highland Park, Ill. W. C. EGAN.

## The Problem of the Wooden Fence

A HIGH board fence is an eyesore, ye many people are unwilling to cover i with vines, because sooner or later these wi cause the wood to decay. The thing to d is to put up chicken wire in front of the fenc and grow the vines on the wire.

We bought some strips a few years ag an inch thick, two or three inches wide, ar thirteen feet long, for five cents each; al some two-inch mesh wire netting one or tw feet wide at three-quarters of a cent a squa foot. Nail the strips to the fence perper dicularly, about six feet apart. To these tac the wire horizontally, leaving six-inch inter vals between the widths of wire. The spac between the fence and the wire provided b the strips is to allow for the twining of th vines and to give a little air space around th leaves. The intervals between the widths o wire are partly for economy, as the vines will reach from one to the other, making a solid mass of wire unnecessary, and partly for convenience in handling and training, which is difficult to do on an unbroken stretch of wire.

Foliage vines, except English ivy, are good for this purpose. Virginia creeper and ampelopsis are two of the best of these Vines with abundant foliage make a goo background for cosmos, hollyhocks, singl dahlias, and other flowers that require sup port. These can be tied to the wire as the grow, or else flowering annual vines can b planted each year—cypress vine, mornin glory, climbing nasturtiums, or sweet pe for beauty. For use and as a c plant some mixed gourd seeds. T worth will provide as many dollar surprise and entertainment.

for beauty. For use, and as a curiosity, plant

## How to Buy Fertilizers

THE simplest and easiest way for anyone to solve the fertilizer problem from the gardening point of view is to buy a bag of ready-mixed fertilizers, and thousands of people do this every year. It is not, however, the intelligent nor the economical way. Economy, however, does not cut as much of a figure in the small home garden as in farm operations or in professional fruit and vegetable gardening. We spend more than fifty million dollars a year on fertilizers, but at a rough guess it is doubtful whether the fertilizers bought for home and garden use would amount to more than a million or two.

If I had only five dollars to spend on my garden this year, I think I should put four of it into fertilizers, and one into seeds and plants. The reason why the general run of gardens in this country have only ordinary success is that a person commonly thinks first of the plants that he wants to eat, while the needs of the soil come afterward. Year after year I make the same old mistake of buying a great variety of seeds, most of which are forgotten in the spring rush, or if I get the rare things planted, the chances are that they never survive, or drag out a miserable existence. Every single plant in a garden ought to be a success, and the only way to have a successful garden is to have the soil rich. There is a great deal more satisfaction in having a few sturdy plants that are simply bursting with health and vigor than half-starved specimens of rarities and novelties. Anyone who reads this magazine ought not to be satisfied with a garden that is simply "good enough." It ought to be a very good garden, and the only way to have a very good garden is to enrich the soil by fertilizers or manures.

While the people will go on buying ready-made fertilizers till the crack of doom, the man who enjoys putting intelligence into his hobbies will find the fertilizer problem a fascinating one. No subject under heaven is more complicated or has more uncertain factors. But these obstacles only add zest to one's enjoyment, if one goes at the matter in the right spirit. When Liebig, about 1841, discovered the nine elements of plant food, people jumped to the conclusion that the only thing we should have to do would be to analyze the plant and find out its chemical constitution. This has been done a million times, but the chemical constituents of a plant will never be an absolutely safe guide as to its needs, for a plant often takes up more of a given element than is good for it. The next great hope of humanity that was dashed was the assumption that a chemical analysis of the soil would give an infallible guide for determining what kind of fertilizer to use and how much. The reasons why soil analysis alone can never be a perfect guide are numerous. Neither method alone is entirely reliable, but both, when taken together, furnish valuable hints.

While there are nine elements of plant food, and perhaps more, there are only three of them that are of practical importance to the planter. These are nitrogen, phosphoric acid and potash. These are the elements that are usually deficient whenever crops fail, and they are the costly elements to replace. To these should be added lime, which is also a plant food, but which, so far as its food value is concerned, is nearly always present in sufficient quantities. The great function of lime is to make the soil comfortable for the bacteria that supply nitrogen to the soil. Lime sweetens sour land, and often improves the condition of the soil that is not sour. It is therefore called an "amendment" rather than a food.

The only intelligent way to buy fertilizers is to find out what nitrogen, phosphoric acid, potash and lime are for, what forms they can be purchased in, and the relative value of these for general and special purposes. It is commonly said that nitrogen makes growth, phosphoric acid flowers, and potash fruit. This is going a little too far, because phosphoric acid and potash work together for the formation of flowers and fruit, and the experiment station people are not willing to say that their functions are differentiated in the manner stated above. But there is no question what leafy crops need. All such crops as lettuce and cabbage, of which we eat the leafy parts and not the flowers or seeds, require plenty of nitrogen.

This department will discuss how to buy nitrogen; how to buy phosphoric acid; how to buy potash; lime, when and how to use it; what special crops need; what different kinds of soil need; low-grade versus high-grade fertilizers; barnyard manure; cover crops; and in general the whole subject of making the garden rich and productive. The aim will be to simplify the whole subject as much as possible, and the point of view will be entirely that of the home, fruit, vegetable and flower garden. In my library there must be five or six hundred bulletins on fertilizers, but of course they deal almost entirely with the problems of the professional farmer and horticulturist, and the scale of operations is large. Hidden away in this discouraging mass, there are a few pamphlets that will be of genuine help to the gardener. It will pay everyone who has a garden to ask the United States Department of Agriculture for printed matter on this subject, and also to write to his State experiment station, specifying exactly what he wants. There is no time like the winter to study the fertilizer question, nor is there any other subject which we can so profitably study. The way to have a better garden next year is to enrich the soil as much as possible.

Articles in this department will be written by unbiased specialists. The fertilizer business is on about the same intellectual and moral plane as patent medicines. This department is in full sympathy with the experiment stations.

### PRACTICAL HINTS FOR FEBRUARY

See what you can do about getting manure for the garden. The value of manure depends almost entirely upon the way it is handled. If you have plenty of barnyard manure haul it out every day to the garden, if it is practicable, and put it on the snow. The worst thing you can possibly do is to leave it exposed to the rain and never turn it over, because it heats quickly and most of the nitrogen goes away. Whenever you smell ammonia, nitrogen is being wasted. Keep the manure under cover and fork it over every three or four days, or else haul it out every day and put it where you want it to do the most good. Now is the time to manure the lawn or sprinkle bonemeal on the snow.

WILHELM MILLER.

## Greenhouses Costing $100 to $350

THE little greenhouse pictured in the department heading is the property of Mr. E. T. Harvey, of Bond Hill, O. Although Mr. Harvey goes to Cincinnati daily, he manages to care for his greenhouse in a half-hour each morning. The house is 34 feet long and varies in width from 8 to 12 feet. Such a greenhouse can be built for $350. The owner adds still further to its usefulness by using it as a background, around which he has laid out a flower border 2½ feet wide. In the spring this border is filled with Dutch bulbs, and in the summer with greenhouse plants.

A remarkable feature of this small greenhouse is the number of large plants it contains, such as large palms, a *Pittosporum Tobira*, measuring more than 5 feet across, loquat, orange and lemon trees bearing fruit, araucarias, azaleas, camellias.

These are moved into the open garden in the summer-time. Three large climbers stay in the house all the year round, a night-blooming cereus, some climbing roses and a *Monstera deliciosa*.

This small greenhouse furnishes flowers for the table for every day of the year.

A greenhouse costing $100 has been built by a resident of Ottawa, for use in an entirely different way. His object was simply to raise flowers and vegetables for setting out in his garden, and to protect a few flowering plants in the fall and spring. It is a "lean-to" 15 feet wide and 20 feet long.

## Gardening Without Backache

THE wheel-hoe is the most important garden tool invented within a century; at least, one gardener thinks so—a busy housekeeper, who has undertaken the entire care of the garden as a means of health and pleasure. What can it do? Almost everything that hands, hoes and rakes can accomplish, and does it better and faster. My wheel-hoe has one small wheel and four kinds of attachments—rakes, scrapers, cultivators, and plow. There are more elaborate ones with drill attachments and large wheels—some with two wheels. They cost from $2.25 to $10. This may sound like a high price, but ours has long since paid for itself several times over, because it is such a saver of time and strength, and does its work so well.

The small-wheel kinds are best adapted for soil that is in fairly good condition, but the large wheel is better for rough land, because it rides over obstructions more easily.

The wheels make it possible to push the tool in a series of jerks—drawing it back every few feet for a fresh start; this will not be found necessary in light, loose soil, or for shallow cultivation.

The most expensive attachment is the drill, and this is invaluable to the market-gardener and to the country gentleman, or to any one who has a large garden, especially if the rows are long and only one kind of plant is grown in a row. In the small home garden, however, where many kinds are grown, and in short rows, the expense of a drill may be saved.

The scrapers are excellent for nipping off a fresh crop of young weeds, keeping the paths clean, or for shallow cultivation, but in our experience the plow has been the most useful of all the attachments, though we have nothing against the others; they are useful and satisfactory, but the plow prepares the trenches for all but the shallow-planted seed, covers the seed after it is planted, does all the close cultivating and a good part of the general cultivating between rows, and last, but not least, it is in constant use as an edger for the beds and vegetable rows; more than one washout has been prevented in our garden by keeping the crops ridged up by the indispensable wheel-hoe.

My ancient and orthodox hoes stand rusting in a corner of the barn. Even the push-hoe, once a prime favorite, and the ever-useful rake, are taking a rest, for the wheel-hoe replaces them all, and, besides that, does work which they never pretended or attempted to do. My memory is still sore with thoughts of the bone-racking motion of the primeval hoe and the see-saw of the old-time rake.

Think of the difference between that and taking a stroll between your rows of vegetables, pushing that light-built, easy-running gem of a tool—the wheel-hoe! The only time mine has been really hard to work was when I tried to plow too deep, or run it up-hill or turn tough soil; although this work was hard to do, it would have been impossible with any other hand-tool.

IDA M. ANGELL.

## Flowering Trees and Shrubs

EIGHT SHOWY KINDS THAT CAN BE TRANSPLANTED FROM THE WILD IN FEBRUARY

FEBRUARY is an excellent month for transplanting flowering trees and shrubs from the wild into home grounds, especially if the January thaw has bared the ground and the air thrills with the promise of spring. The trees are dormant, their roots packed tight in frozen earth. It is harder digging, but you get a better ball of roots.

Certain flowering trees among our native species are as beautiful as any exotics obtainable from a nurseryman. In fact, all the best ones are sold by nurserymen. Where these trees are common there can be no objection to digging them up to take home. And these trees are always dearer to the family than trees purchased from a full purse by proxy.

I suggest eight native trees for transplanting to the home grounds this month. Go to the woods and locate a full-grown tree. Bark, shape, hanging seeds, leaves on the ground, or the situation of a tree may enable you to recognize it in winter. The winter bud is the best means of identification. Next best is the arrangement of buds, whether opposite or alternate. A twig from the old tree will enable you to find saplings of the same species. The buds are exactly alike. First comes the problem of selection. The younger a tree is the safer is its transplanting. Choose shapely young specimens that grow in open spaces. Their roots are not entangled with those of older trees. They have had sun and air. Their buds are large. They will make a quick, vigorous start, for their twigs are stored with food. Their bark is thicker; they are hardier than saplings in crowded places. Tap-rooted trees are hard to dig and hard to move. Fibrous-rooted ones are easier, for they are shallower and have a close grip on the soil. Trees growing in clay loam are more successfully transplanted than those in sandy soil, for clay sticks and sand falls away. The second problem is to dig a sapling so as to save the highest percentage of its fibrous roots and to keep these from exposure to the air. In February, careful digging will usually turn out a solid ball of earth. This may be wrapped in a gunnysack to hold it together on the home trip.

The last problem is to set out the tree in the hole previously dug to receive it. It should be solidly packed with soil all around and under the ball of earth. It should have its old level—no lower, no higher. The top must be pruned to offset the loss of roots. No watering is necessary.

In short, the philosophy of successful transplanting of deciduous trees is that the small feeding roots should be kept in ignorance of the change that is going on.

Every garden needs a flowering dogwood, with its snow of white blossoms in spring. It should be planted in the border of an open lawn, but overtopped behind by large trees, because it has no foliage of its own at flowering time to make a background for the blossoms. The price of such a beautiful tree is careful transplanting and patience with its slow growth.

The tulip tree is another particular tree. Its roots are fleshy and easily injured. To get a young sapling home without bruising the roots and unduly jarring the earth ball requires patience and intelligence.

The hobble-bush, or wayfaring tree of America, bears white blossoms in spring in a flat cluster, the outer flowers of which are large and showy, like the snowball's. The shrubby viburnum loops down its slender stems and strikes root at the joints. One of these offsets will grow well and brighten with its scarlet berries a moist and shaded corner of the garden.

The pink-flowered crab-apple is beautiful in bloom, and its fragrance is spicy and delicate. The native hawthorns should have at least one representative in every garden for its white blossoms, abundant showy fruit, and picturesque, angular, and thorn-set branches. The shad-bush, or Juneberry, will as readily light up your yard with its cloud of early white bloom as it does the awakening roadside. The crab-apples, hawthorns, and Juneberries may be successfully transplanted from the wild into ordinary garden loam without taking extra care.

The tree "pussy" grows on a bog willow (*Salix discolor*). Cut twigs this month and keep them in water. By the time you are ready to discard them as bouquets the twigs will be well rooted, and by setting them in moist soil you will soon have pussy willow trees.

The witch-hazel is the last in the yearly procession of flowering trees. It blooms in October and ripens its last-year's seeds at the same time. The yellow flowers are delicately fragrant, and, though small, make a fair show because of their abundance. The explosive pods furnish much amusement.

JULIA E. ROGERS.

## The Famous Georgia Collards

THE collard is the best hot-climate plant of the cabbage family for greens. This is a good thing to know, for the cabbage is essentially a cold-climate vegetable, and few of its forms will do their best in hot weather. The collard does this at the expense of forming a compact, self-blanching "head." Instead of having a broad, well-rounded leaf, like a cabbage, it has a narrow, deeply lobed leaf, and these leaves are arranged in a characteristic rosette. The tender young leaves below the top are cut off and eaten, and the plant grows up to a height of two or three feet, forming new rosettes above while being robbed of its leaves below. Collards are to the South what kale is to the North.

There are two varieties—the European and the Georgian. The European is called rosette colewort, green rosette colewort, or simply collard, and, although capable of forming a head, it is generally cut for greens. Unlike the Georgia collard, it grows only eight or ten inches high. The leaves are crimped, rounded, and deeply hollowed or spoon-shaped. If sown in early spring the crop is ready in August, and if left later the plants make heads, but there is not much point in doing this, as cabbages make better heads. Consequently, the thing to do in Europe is to sow the seeds in early summer, in order to have greens in late autumn, when greens are scarce.

It would be interesting to know when and where the Georgia collard originated, who developed it, and how. As far south as the orange belt it is customary to sow seeds in February or March, so that the crop will be ready before drought sets in. In the middle South, where collards are most popular, they are often started in July or August for autumn greens. When the young plants are transplanted to their final positions they should stand about three feet apart, in rows three and a half to four feet distant. The cultivation is the same as for cabbage.

Professor Bailey says that young cabbage plants are sometimes eaten as greens under the name of collards, and that cabbage seeds are sown for this specific purpose.

It is not likely that collards will become popular in the North, as kale is common and cheap and better adapted to a cold climate.

H. R. C.

## The Cultivation of Collards

THE collard, to the rank and file of Georgia Crackers, is what the potato is to the Irishman, and a dish of collard greens is a *sine qua non* of the dinner of the farm laborer, black or white. The collard is an accommodating vegetable, and will grow and thrive under conditions which would cause any self-respecting cabbage to hang its head and wither of disgust. In the gardens it is planted in the early spring, and in a little while the first greens may be had by thinning in the rows. Then begins the process known as "cropping"—*i. e.*, the gathering of the under leaves, and from then on indefinitely "cropped greens" are a daily food. The more the collard is cropped the taller grows its stem, and it is nothing unusual to see straggling rows of stems some four feet high, crowned at the top with a rosette of dark-green leaves, and with brave little sprouts putting out up its entire length where the leaves have been taken off for cooking. They live all through the summer, grow delightfully tender and juicy under Jack Frost's attentions, and then in February go to seed along with those which have been sown in the fall for the special purpose of making seed for sale to the dealers.

As a side crop collard seed is profitable, though, of course, the market for the output is limited. The preparation of the soil for collards does not conflict with any other plantation work. The five-acre field which the picture shows in bloom was sown in oats in February of 1903 and made a good crop which was cut in May. The ground was then broken, broadcasted, and sown thickly in peas in three-foot drills. The pea-vines were cut about the middle of September and gave a fine yield of hay. The field was then broadcasted again, laid off in four-foot rows, heavily fertilized, and then set with the collard plants which had been grown from seed planted in a garden spot some six weeks before, the time from the cutting of the pea-vines to the transplanting of the collards being only about six weeks. Their cultivations consisted of two plowings at intervals through the fall and winter, and the seed will be ready for gathering by the latter part of May, when cotton will then be planted after them, thus making four crops in less than two years on one plot of land.

The first Georgia-grown collard seed, some thirty years ago, sold to northern dealers for fifty cents a pound. This, when from two to five hundred pounds were gathered from an acre of ground, was a brilliant investment from that astute man—a transplanted Yankee—who inaugurated the industry. There are a great many now who grow the seed, and the price ranges about twenty cents, but there is a good profit even in that.

Cairo, Ga. MRS. HENRY WIGHT.

## The Southern Gardener's Reminder

PLANT raspberries, strawberries, blackberries, pears, and apples

Plant sweet peas—the earlier they can start the better they will be.

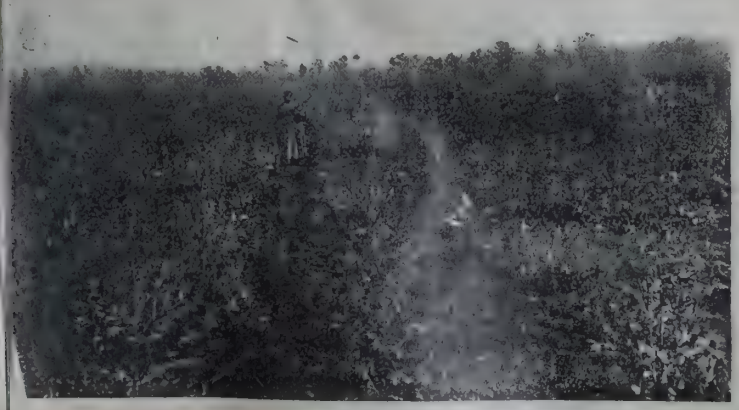
Vegetables which may be planted in the latitude of Richmond. Sow in hotbeds: cabbage, cauliflower, beets, lettuce, onions, radishes, egg-plant, peppers, and tomatoes.

In open ground, last of month, beets, carrots, celery, kale, parsley, radishes, onion sets, horse-radishes, and hardy lettuce plants.

Latitude of Atlanta. Sow in hotbeds: egg-plants and peppers.

In coldframes: cabbage, broccoli, cauliflower, endive, Kohlrabi, lettuce, celery, parsley, and cress.

Outdoors: early potatoes, early English peas, carrots, beets, leeks, mustard, early radishes, and turnips. Set out cabbage plants started in November.



45. A mammy "crappin' greens." Collards in flower

46. Gathering collard seeds

## What Coldframes Are Good For and How to Make Them

EVERY well-regulated family ought to have at least one coldframe and one hotbed. A coldframe differs from a hot bed in having no fermenting manure to supply heat, and in being used chiefly for protecting, over the winter, plants that could not live outdoors, such as tea-roses, while a hotbed is used chiefly to get fresh vegetables a month or more earlier in the spring. Both are, of course, cheaper than greenhouses and both have other uses than those mentioned above.

For instance, coldframes can be used to lengthen the season of fresh vegetables both in fall and spring, though, as a general thing, they cannot be expected to yield a sufficient variety and quantity all winter as hotbeds can, because the temperature in a coldframe during the winter is too low to encourage growth. However, it is quite possible to have fresh spinach from coldframes all winter, by being started enough to be in its prime by November, and so grown it attains a quality far superior to any grown outdoors. Lettuce and radishes also can be had from coldframes throughout the winter, though, naturally, the product is better and more abundant in the months that have more hours of sunshine than December and January. The coldframe also fulfills the same function as the hotbed in starting vegetables in early spring that are to be transplanted to the open ground as soon as the danger of frost is past, though a coldframe will ordinarily enable one to get fresh vegetables in this way only a fortnight earlier, while a hotbed would gain a full month. Moreover, coldframes furnish the best way of growing violets, pansies, English daisies, and the polyanthus primrose, all of which would usually survive the northern winters out of doors and bloom in May. In coldframes, they will bloom for a month or more any time from February to April. Again, foxgloves and larkspurs, though quite hardy and easy to grow from seed sown outdoors in spring, produce far better results if started in September, kept over winter in coldframes, and planted outdoors in spring. There are a great many choice plants that are not quite hardy and do not need to grow at all during winter, but do require some light, or they will become weak and spindling. The coldframe is better for storing such plants than the cellar. When a coldframe is made deep enough to store rhododendrons, azaleas, star jessamines, and other plants, three or four feet high, it is called a pit.

A coldframe may cost anywhere from nothing to fifteen dollars. If one does not care about looks, a loosely thrown together framework, such as is used in the field and removed, leaving the plants to mature where they started, will be found useful for some things, but the best thing is to have a permanent structure which is stoned, bricked, and painted. One that will answer every purpose is nothing more than a topless and bottomless box with a slope of a few inches to the front, which must face the south or southeast. Set it where there will be a fence or building to protect from north winds. Fit the top with a sash which can be lifted for airing and watering; see that the soil is rich and mellow enough for a garden bed; bank up the outside, and you will be ready to sow the seeds of joy for yourself and of envy for your neighbors.

If you do not wish to attempt anything more elaborate than the starting of a few vegetables and flowers in the spring for extra early bearing, you need not bother with the sash, but in its place use a piece of cloth—any material that will keep out cold—fastened to a framework made of inch-thick strips of common pine.

Strictly speaking, a coldframe is a structure accommodating four sashes each 3 x 6 feet, the cost being about $15. They can be bought ready-made and shipped any distance.

If your frame is to be used simply for wintering dormant plants, start your seeds in the summer or fall, long enough ahead for the plants to become fair sized before transplanting to the frame. In the latitude of New York, the middle of September is early enough for cabbage and lettuce, as any earlier sowing tends to make them go to seed. By about November 1st, your seedlings should be ready for the frame, but do not cover them with sashes until there is danger of freezing, and even then the sashes need not be used in the daytime if there is bright sunshine. In fact, the raising of the sash two or three inches for ventilation during the day keeps the plants from becoming too tender. As the weather becomes colder, 10° or less above zero, the glass must be covered at night with carpet, boards, straw, or other protective material. If the plants have become frozen in the frames, this extra protection may be left day and night in case of two or three days of severe cold. You may apply the same principle to the removal of snow—if the plants are not frozen. When snow falls, it must be cleared off, for, if left a number of days, the plants will become tender.

If the temperature inside the frame is from 25° to 32°, the plants will remain dormant. Transplant to open ground when spring is settled.

But, if you prefer to use your frame for starting extra early spring-sown plants, to gain two weeks in the outdoor season, plant your seed four weeks ahead of outdoor planting. Radishes, parsley, beets, and similar vegetables must be planted about March 1st in the neighborhood of New York, and set in the open ground about April 15th or May 1st. A 3 x 6 sash will accommodate about four hundred lettuce plants, each 2 x 3 inches apart.

If you have to be very economical, build some extra frames without sashes and fill them during the winter with leaves or straw to keep the ground unfrozen. On March 1st, set in some of the lettuce plants—fifty to a sash. Transfer the glass from any frame which no longer needs it. Allow the plants air and rain in generous quantities and you will have lettuce two weeks ahead of the outdoor season. When your lettuce comes out in May, plant a half-dozen cucumber seeds in each sash. Keep the glass on at night until the middle of June, when the finished article will be ready to reflect credit on your table.

Don't forget to provide yourself with small shallow boxes for all seedlings; you will find them more convenient and easier to handle than if raised directly in the frame.

When properly treated, plants which are wintered in coldframes will become so hardened that they will stand setting out in the spring long before the seedlings from spring-sown seed. Cabbage, cauliflower, and lettuce are almost hardy anyhow, and several degrees of frost do not hurt them.

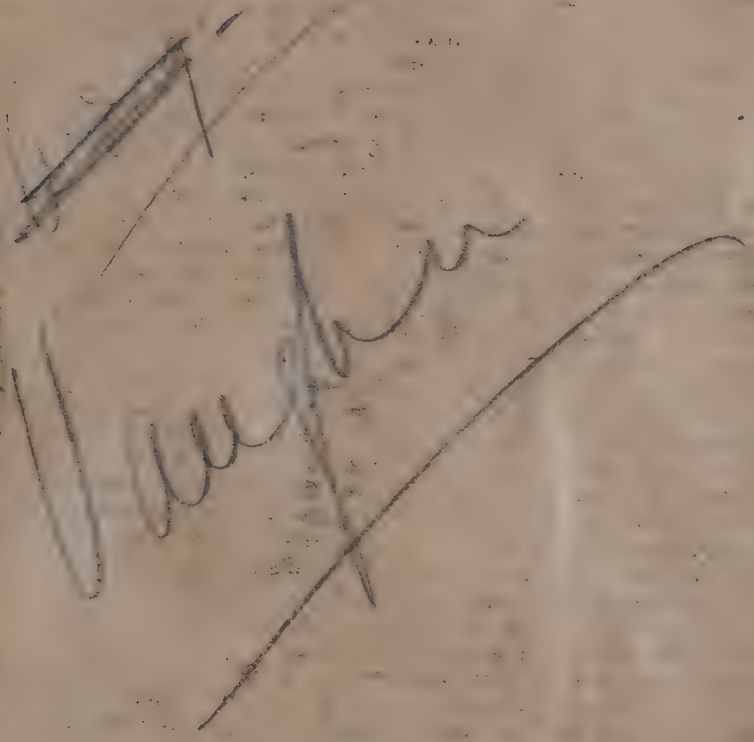
For these vegetables, coldframes are much less trouble than hotbeds, and very little later if closed at night and covered with mats.

IDA M. ANGELL.

## A New Reason Why Roses Should Be Ordered Early

TEN years ago everybody used to order roses in May; now, to get the best stock, they send in their orders in February or even as early as January, stating the date they wish to have them delivered. An immense new business has started up in the last few years, called the "advance order," or "reserve order" business. The up-to-date nurseryman now has an "advance-order house" in which he places the plants for future delivery as soon as they are ordered. Each lot has attached to it a conspicuous card, stating whom the plants are for and when they are to go. This is a vast improvement on the old-fashioned method of ordering at the last minute, and as a result receiving the tag ends of the stock, perhaps pot-bound or covered with bugs or, worse yet, getting an inferior or different variety because the supply has run out.

The March number of *Country Life in America* will contain an elaborate ten-page article on "How to Grow Roses," with list of varieties for every place and purpose.

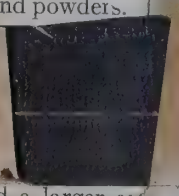


## Spraying Outfits for H[ome] Gardens

The mai[n] ow are these: the ch[ief] whether they [are] che[wing] insects; (3) when the [are] useless. With the exceptio[n] of [a few] species that feed below the ground or [are] concealed in the plant tissues, insects are nearly all fairly easy to attack. They belong to two general classes: (1) those that suck the juices through their tubelike beaks, which are generally held close to the lower side of the abdomen, and (2) those that bite off little pieces with movable jaws. Squash bug and plant lice are examples of the former; grasshoppers and caterpillars, of the latter.

For the former entomologists recommend solutions, dusts, oils, etc., which suffocate these creatures by stopping up their breathing holes (which are always in the sides of an insect, not on the head); for the latter, substances which find their way into the stomachs with the chewed-up food. Tons of Paris green are wasted every year on sucking insects.

The majority of plant diseases either conceal their vegetative parts beneath the tissues of the plant they grow upon, as black knot of the apples; or, like the powdery mildew of the gooseberry, spread these parts mainly upon the outside of the plant tissues which they enter only by means of suckers (haustoria). A hand lens will show which is which. In general there is no remedy for the former after they once gain entrance, though sprays are recommended as preventives; the latter are usually combated with sprays and powders.



If you need a larger a[pparatus] more satisfactory than the barrel form, which costs about ten dollars complete, with ten feet of hose and a nozzle. Since the heaviest parts are placed near the bottom, the barrel is not top-heavy, and you can therefore mount it on a hand pushcart to make it readily portable. If you have a horse you can make this apparatus serve every purpose for which many of the most costly special machines are built.

Unquestionably these are two of the very best spraying outfits made; and with different nozzles, which cost only a trifle, you can use them for every domestic purpose, such as washing windows and wagons, for whitewashing, and even for painting. M. G. K.

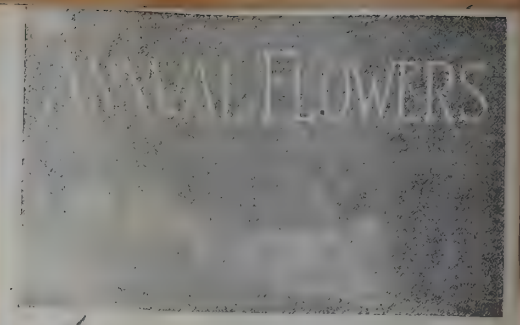
## A Boston Fern with Fronds Mo. Than Eight Feet Long

THE fern shown below is probably a sport from the Boston fern (*Nephrolepis exaltata var. Bostoniensis*), differing from it in having wider fronds. This was sent me without a label by one of the leading plant companies as a premium with a large order in the spring of 1899. It then had three or four small fronds, none more than eight inches in length. I potted the young plant in one-half wood soil, a little well-rotted barn-yard manure, and good garden soil. It grew luxuriantly for three years without change of soil. In the fall of 1902 I took it from the pot and with a sharp carving-knife cut the roots in four parts, carefully separating the fronds. I then gave fresh soil, potting the largest in large tin pail, with

48. A Boston fern with more than 200 fronds, the longest of which measures eight feet, four inches

about two inches of broken pots in the bottom. I gave plenty of water when required, which during the winter, when the house is warm, is almost daily. The house is heated with combination steam and warm air. The fern is placed on a bracket between the two center windows having a southwestern exposure. I do not move the plant in the summer, but by drawing down the shades and closing blinds of all except the eastern window protect it from the strong sunlight in hot weather. The longest fronds measure eight feet and four inches. I counted over two hundred fronds.

The plant at the right is a maiden-hair fern; the one at the left on the pedestal a small feathery palm, *Cocos Weddelliana*. On the pedestal at the right is an *Asparagus plumosus*.




## The Very Earliest Flowers

MARCH is the great month for starting flower seeds indoors, but there are certain days in February that stir one's blood with a desire for gardening, and then is the time to saw up an old soap-box or two and start some seeds of kinds that are slow to germinate or require an extra long season of growth. For the special purposes mentioned in "The Gardener's Reminder" (page 9), the following are highly desirable:

GOOD THINGS TO START NOW

| | |
|---|---|
| Tuberous begonias | Variegated periwinkle |
| Dusty millers | Single dahlias |
| Cigar plant (Cuphea) | Verbenas |
| Ten weeks' stock | Ageratum |
| Scarlet sage or salvia | Canterbury bells |
| Tufted pansies | *Cobæa scandens* |
| | Cosmos |

These may all be raised from seed started in a sunny window in February. Have you a south or southeast window in any of your living-rooms or in a light cellar?

If so, you may raise enough plants to beautify a large garden. A greenhouse is not essential for this purpose.

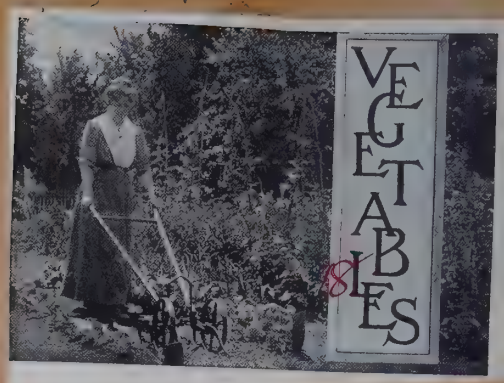
The first things to procure for the starting of these seeds are some "flats" or shallow boxes. These should be about three inches deep and of a length and breadth to be convenient to handle. They must have cracks or holes to provide drainage, which should be further insured by pebbles or similar material in the bottom of the box.

Next get the soil. This should be good, rich garden loam. Fresh manure need not be added, as it may cause too quick a growth. The object is to have the plants strong and stocky. Sift the soil, so it will be porous, not hard and lumpy. Now you are ready to sow your seed. The ordinary-sized ones should be planted to a depth equal to four times their own diameter. The very small seeds should be hardly more than pressed into the soil, and the "powdery" ones should have a pane of glass placed over the box to prevent their drying out altogether. Make the soil moist and press with a board after the seeds are planted, or they may dry out.

During growth keep the soil moist by means of a rubber bulb sprayer; any other kind of watering is likely to wash the seeds out. Try to strike a happy medium in the amount of moisture, for too much will give a chance to fungi, which cause the seedlings to damp off, and too little will interfere with their sprouting at all.

Next month there will be full directions concerning temperatures and transplanting.

A. R. M.




Vegetables Department

## Forcing Rhubard and Asparagus Without Expense

RHUBARB and asparagus may be "rushed" in early spring and brought, steaming, to the table from two to four weeks earlier than is usual with the home-grown product. Set half a barrel, with both ends out, over a clump and force it into the ground slightly. Pile fresh stable manure, steaming hot, against the outside of each half barrel, and lay hotbed sash across the top if weather is still freezing cold. A four-sided box, smaller at top than at bottom, is used for the same purpose, and though more convenient, is not always so available as the half barrel. Cover the barrel with old bagging or straw. During March, three weeks will give a crop of excellent, tender rhubarb. The plant is not injured by this mild forcing and can be used for the same purpose next year.

If the plants are thus protected by boxes or barrels in fall before freezing, and packed loosely inside and solidly outside with litter, good, tender stalks may be had even earlier. The litter should be cleared away in February and fermenting manure used as described above.

Coldframes, hotbeds, greenhouses, and mushroom caves are all used for forcing rhubarb, but lacking these one may utilize an ordinary root cellar. The only requirements of this hardy plant are warmth and moisture. It will grow best in a temperature of from 45° to 60°. The less light they have the tenderer the stalks will be, and the ruddier their color. The acidity also is less in cellar-grown pie plant, and less sugar is required in cooking. For cellar forcing plants should be dug any time after frost from beds three or four years set. They should be lightly covered, to prevent alternate freezing and thawing, and allowed to remain outdoors until slightly frozen. The roots may then be packed closely in a box or even on cellar floor. Soil should be filled in between the roots, and the crowns buried from four to six inches. The temperature should be cool and the soil moist. In a cold cellar a lighted lantern placed near the plants often supplies enough heat.

A dozen strong roots will supply a small family with a taste of these vegetables delectable in earliest spring. The roots once forced in the cellar are thrown away. The family asparagus and rhubarb beds that have had good care for several years ought to be able to spare a few well-stored roots for this purpose every winter.

## What to Do with Window-Garden Bulbs After Blooming

doors, and you will be rewarded by having them flower in the garden.

All you have to do is to see that the bulbs get thoroughly ripened.

The window is the best place for them, because it has the most sunlight, but if the plants are unsightly [illegible]

The window is the best place for them, because it has the most sunlight, but if the plants are unsightly they may be removed to a light cellar. Give them less water now than before blooming. When the leaves get yellow the bulbs are ripening. It is proper to cut off the flower stalks, but not the leaves. Unless the leaves reach full size and maturity, the bulbs will not get large, strong, and ripe.

Dutch bulbs (tulips, hyacinths, crocuses, narcissi, etc.) are very slow to regain their vitality, and should not be forced two successive seasons. Plant them in the garden. The largest and heaviest hyacinth bulbs which have spent the season outdoors may be potted the first of September, and will give bloom extra early for cutting.

Several kinds of bulbs require frequent transplanting. Hyacinths and some others should have their place changed every year. Crocus should be transplanted every three or four years. The same interval is best for hardy narcissi also, or they will be overcrowded and become weak and spindly, and perhaps refuse to flower.

The Bermuda lily will bloom again in August if treated as follows, but will not be good for forcing the next winter: After it blooms withhold water for ten days, then put the bulbs in a coldframe or sheltered place. Set them close and fill the spaces with earth and cover with three or four inches of dry leaves. If it is spring no sashes will be needed.

When cyclamen is through blooming withhold water gradually. The corms should not be allowed to get dry. A shady coldframe is best for them during the summer.

It is not worth while to attempt to raise Chinese sacred lilies a second time if they were grown in water the first time. On the other hand, if grown in earth, they and all other polyanthus narcissi will bloom every year if they receive proper treatment, such as should be given to other bulbs after flowering. When repotted in fresh, rich soil early in the fall, and kept moist until the growth starts, they have been known to bloom in November—before the new bulbs, in fact.

H. C. M.

## Inoculating the Soil

THREE or four years ago a great German scientist discovered and patented a way of sending out material for inoculating seeds or soil with the bacteria necessary to enable peas, beans, clover, alfalfa and other legumes to get free nitrogen from the air and thereby add to the richness of the soil, but the experience was a commercial failure, because the bacteria in the scientist's laboratory were fed upon rich food. Dr. Moore, of the United States Department of Agriculture, found that the bacteria fed upon food rich in nitrogen became lazy and would not work hard enough to get nitrogen from the air. He therefore fed the bacteria on food poor in nitrogen, with the result that the United States Department of Agriculture is now sending out to all applicants, free of charge, small packets with full directions for inoculating the seeds or soil. Most of the plants concerned are forage plants, or plants used for green manuring, but it will pay any one who has a garden to write to the Department of Agriculture for material for inoculating garden peas and beans.

## More Enjoyment and Less Work

IN this department we invite suggestions concerning anything connected with the home fruit, flower or vegetable garden. If you have worked them out, so much the better. We want to know the new and unique things that are going on in all parts of the country, and offer a five-dollar bill for the best suggestion that comes to us each month.

This sort of friendly and informal competition is quite the thing among amateur gardeners in England, and it is to be hoped that Americans are not deficient in imagination and ingenuity in the planning and execution of their gardens. As a sample subject, we would suggest "How to Have More Fun and Less Work in the Garden."

Send all contributions to the "Suggestion Department," THE GARDEN MAGAZINE, 133 East Sixteenth Street, New York, N

others. Wild violets make a beautiful edging.

## A Successful Home Fruit Garden

IN spite of the profusion of fruits that can be bought in the markets in California, there is every inducement for each family to grow its own. Home-grown fruit right from the trees is eaten before it loses that perfect delicacy of flavor which it is impossible to get in commercial fruit. There is no thought, either, that what one is eating has been fingered by a dozen dirty hands, or has been thrown into dirty boxes and hauled miles over dust-clouded roads, to lie hours in an open store on a busy street before it comes to the table. Or, if it is winter, there is no shuddering apprehension that the dried peaches have been "tramped" by the feet of the packing-house crew. Even in California, ideal fruit country though it is, there are unavoidable drawbacks to the complete enjoyment of fruit unless one raises it himself.

I know of one family of five at Fresno that supplies much of its own fruit, even on so small a town place as three lots 75 x 150 feet in all, with no cost but the water to irrigate the trees, and the slight trouble of picking the fruit. From six carefully-tended trees they gather a succession of fruits from June to December. First, the apricot bears more than enough to supply the table daily with fresh fruit and delicious ices. What is left over from these uses is canned or made into marmalade, several quarts of each being stored away for the winter. All this from one tree not yet fully grown!

Then the fig-tree yields the first of its three crops for the summer. Fresh figs with sugar and cream are served each morning for breakfast. Much of the fruit cannot be eaten this way, and falls to the ground before it can be picked. These are dried and packed away, or candied, or made into preserves. With short intervals between, two more crops ripen before the summer is gone.

A pear-tree and an almond-tree are just coming into bearing, and each supplies a little of its fruit.

Late in December two trees are full of golden oranges, which are picked just about Christmas time. The crop of two large boxes lasts well into February.

Besides the fruit-trees there are three grape arbors, one of Sweetwaters and two of the old native Mission grapes. The first returns several quarts of preserves and many pies; the other two supply an abundance of table grapes.

The only care required by the trees and vines is irrigation with a garden-hose during the dry summer weather, and pruning once a year. The heavy fall of fig-leaves in the autumn gives a quantity of rich leaf mold which is used to fertilize the ground for the flower-beds on the place.

He does all the necessary work on his trees and vines outside the hours of a busy professional life, and considers the quality of the fruit and the pleasure of growing it an ample

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No. 1 FEBRUARY, 1905

*A Monthly Magazine on Practical Gardening*

TWENTY REGULAR DEPARTMENTS: THE GARDENER'S REMINDER; COLDFRAMES AND HOTBEDS; THE BACK YARD; VEGETABLES; BULBS; ROSES; ANNUAL FLOWERS; THE SMALL GREENHOUSE; THE WATER GARDEN; THE WINDOW GARDEN; GARDEN INSECTS; THE HARDY BORDER; RECENT DISCOVERIES; ETC.

10c. $1.00 A YEAR

Mr. Doubleday's criticism of the first number

# THE GARDEN MAGAZINE

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# The TARRYTOWN FERN *NEPHROLEPIS PIERSONI ELEGANTISSIMA*

THE BEST RECORD OF ANY NEW INTRODUCTION

THE MUCH COVETED $50 PRIZE from the HORTICULTURAL SOCIETY, of New York FOR THE BEST NEW PLANT OF THE YEAR

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**Gold Medal**
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**Gold Medal**
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**Gold Medal**
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**Silver Medal**
Society of American Florists—Highest Award.
**Silver Medal**
Massachusetts Horticultural Society.
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New York Florists' Club—Highest Award.
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**Silver Medal**
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**And Numerous Diplomas and Certificates of Merit.**

## Introduction 1905

There is nothing in the fern line that is as handsome as this beautiful fern when well grown. It is a wonderful improvement over Nephrolepis Piersoni in every respect both in regard to beauty and habit of growth.

It is a sport from the Pierson Fern (Nephrolepis Piersoni), but it is very much more beautiful and of greater value. It is as different from the Pierson Fern as that is from the Boston. The small side pinnæ are again subdivided, producing an exquisite and beautiful effect, changing the entire character of the fronds, which measure less than half the length and about twice the breadth of the fronds of the Pierson Fern. The fronds also assume an entirely different form, the side pinnæ standing at right angles to the mid-rib of the frond, on edge rather than flat, as is usual, making both sides of the frond equally beautiful —entirely different from any other fern.

The Plant is very dwarf, only about half the height of the Pierson Fern, and of very much more compact habit. Taking it altogether, it makes one of the most exquisite plants and one of the most valuable for table and house decoration that has ever been introduced. The cut fronds, on account of their beauty, will be in great demand for table decoration. Well-grown plants make most magnificent specimens.

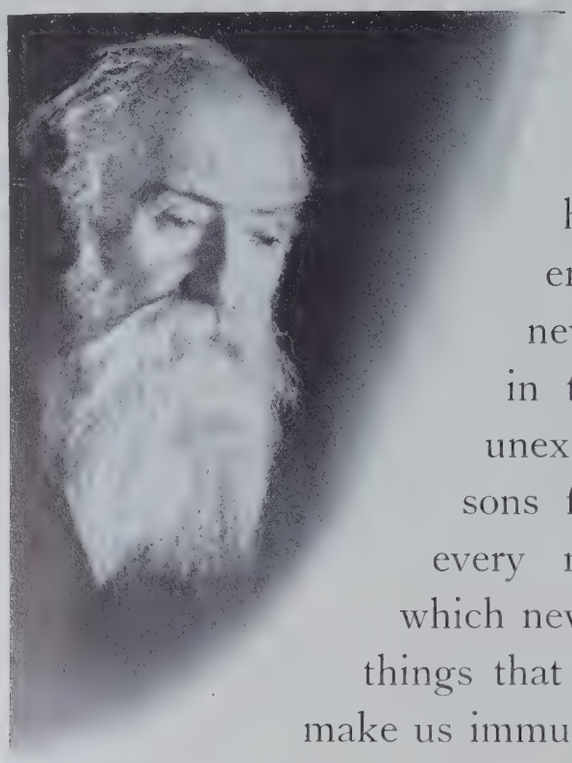
NOW READY FOR DELIVERY

PRICE—Small plants 2¼-inch pots, $1.00 each. Fine large specimen plants—5-inch pots, $2.00 each; 6-inch pots, $3.00 each; 8-inch pots, $5.00 each; 10-inch pots, $7.50 each.

F. R. PIERSON CO., TARRYTOWN-ON-HUDSON NEW YORK

IT TAKES $20,000 worth of postage stamps to mail *The Maule Seed Catalogue* for 1905. It contains 152 large pages, full from cover to cover of illustrations and descriptions of the best and newest things known in horticulture. As the original introducer of Prizetaker Onion, Nott's Excelsior Pea, Davis' Wax Bean, etc., I know what I am saying when I make the statement that never before have I offered so many novelties in flower and vegetable seeds of real merit. No gardener can afford to be without this book, which will be sent free to all sending me their address on a postal card.

*Wm. Henry Maule, Philadelphia, Pa.*



"TO add to the resources of one's life—think how much that means! To add to those things that make us more at home in the world; that help guard us against ennui and stagnation; that invest the country with new interest and enticement; that make every walk in the fields or woods an excursion into a land of unexhausted treasures; that make the returning seasons fill us with expectation and delight; that make every rod of ground like the page of a book, in which new and strange things may be read; in short, those things that help keep us fresh and sane and young, and make us immune to the strife and fever of the world."

These are the words of the "Nature Poet," JOHN BURROUGHS, in his introduction to

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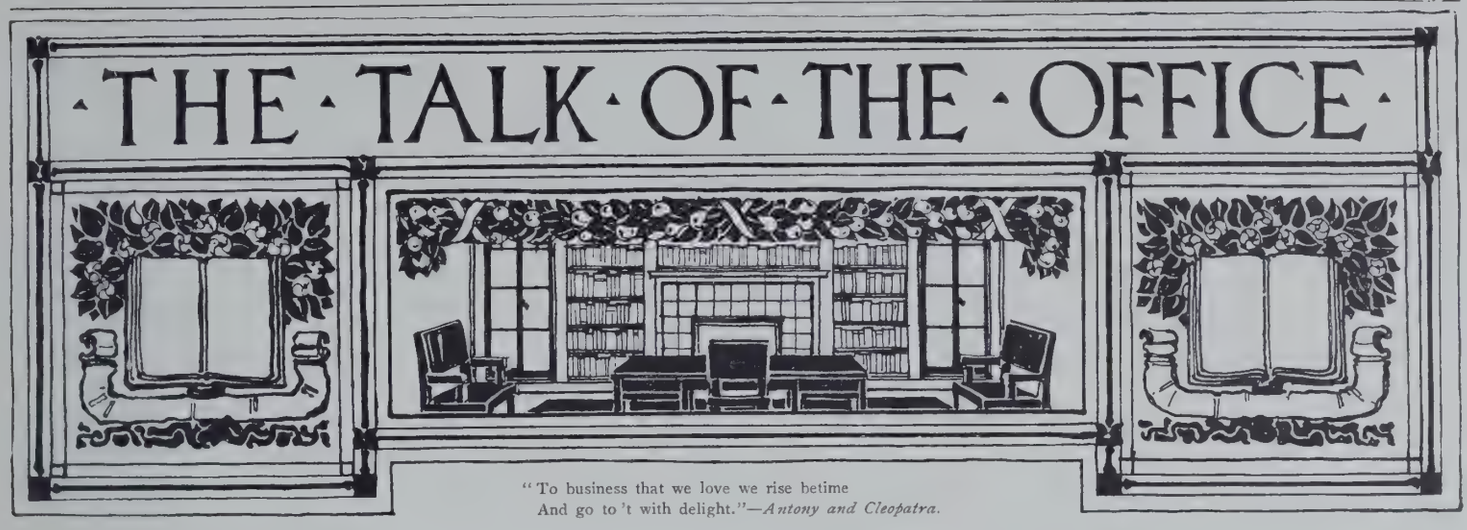
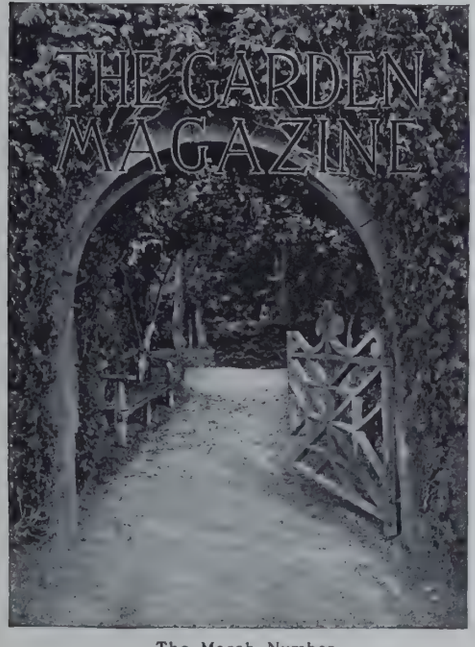



"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra.*

### PLANS AND PURPOSES

WHEN any one feels the call to start a new magazine, there rises up a well-defined class of people who protest that there are magazines enough, and it is possible that some will say this apropos of THE GARDEN MAGAZINE.

For our part, we have been surprised at the great patience of the public, which has so long waited for a beautiful periodical devoted to that most fascinating and refreshing of all subjects, the garden. There are dignified and attractive monthlies devoted to every other subject under the sun, from railroads to chickens, but no such magazine as we have in mind to make exists. Our chief difficulty will be, we fear, not to find a market, but to make a magazine good enough to meet the demands of that market: it will take a little while to get in full swing of the great field that we hope and mean to occupy. We know the deficiencies of this first issue, and we know where our real shortcomings lie, but we shall be grateful for practical suggestions for improvement in text or illustrations, and especially we invite the stories of personal gardening experiences when they are practical and inspiring.




The March Number

### A NEEDED MAGAZINE

THE GARDEN MAGAZINE is the logical working out of the growing interest in the garden not merely as a means of livelihood (though we expect to see more and more people turning to it as a life work), but as a delight and pursuit for the busy people in the world who find a new fascination in the things of the soil.

In England, gardening papers and magazines have circulations running into the hundred thousands; the best authorities are represented in their columns, and in technical matters they are far more advanced than would meet the needs of any large public in this country; but they are, with few exceptions, not beautiful. There is really no excuse for a periodical which touches the things of nature that has no beauty of form and illustration; and here, we have felt, there is a great opportunity.

### QUALITY, NOT BULK

Fine printing and paper and fine cuts cost about twice as much as ordinary printing, cheap paper and poor illustrations, and yet if one does not attempt to give too much in quantity, the quality may be sustained and the magazine sold at a low price. THE GARDEN MAGAZINE will contain the very best we can get, and we expect to cover the whole subjects with crispness and interest; we intend that all articles shall be short and to the point.

### TIME OF PUBLICATION

As the contents of the magazine must necessarily be timely, and as each number will dwell a good deal on the things to be done month by month and season by season, we propose to have every issue in the hands of our subscribers about two weeks before the beginning of each month. Fully half the pleasure of gardening is in the planning of one's work and the joy of anticipation. Seeds and plants are to be purchased and work cut out before the month opens, and we feel that the early arrival of the magazine should stimulate one's interest in advance.

### THE MARCH NUMBER OF THE GARDEN MAGAZINE

will be the chance to bring into this magazine the real spirit of spring. It is too early to speak as yet of the contents of that issue. It will be changed and changed again: the least attractive articles or subjects will be displaced by more attractive ones—it is wiser to waste a less attractive article when a better one appears than to print the second-best. If you find any subject neglected in this initial number, let us know what it is.

### THE FEBRUARY ISSUE OF COUNTRY LIFE IN AMERICA

Our older magazine publishes in February an article called "The Love-Making of the Grouse," which typifies the kind of thing the magazine stands for. The photographs, by Josef Brunner, depict this shy bird at his mating season, when the cock sets out

The February Number

to win his lady-love. That such a series of life photographs could be made is almost incredible. These photographs form but one of a series which have been appearing month after month on the squirrel, the tarpon, the beaver, etc., and represent months of painstaking work. The time and patient effort wasted even by the most expert photographers to gain the results given to the public can hardly be realized.

# How a Commercial Tree Reached Maturity

THE STORY OF A GREAT SUCCESS BUILT
ON A SMALL ARTICLE, WELL MADE

THE growth of a great business is like the development of a tree, and its final success depends very much upon the same sort of treatment. To begin with, the seed, or the article upon which the business is based, must be good; then the soil or class of customers must be suitable and in the proper condition to receive it; and, finally, the cultivation of the ground and care of the tree itself must be thorough and careful, for like a

L. E. WATERMAN
Inventor of Waterman's Ideal Pen

tree, a business that does not develop and grow continually loses its vitality, begins to droop, and eventually dies.

Twenty-one years ago this month there was planted, in a well-prepared and fertile soil, a seed that after careful tending and watchful care has developed into a flourishing healthy business, like a sturdy tree that has reached its maturity and is growing still.

At the back of a little cigar store on Fulton Street, New York, Mr. L. E. Waterman, on February 12, 1884, established the Waterman's Ideal Fountain Pen business. A single desk was the office, factory, store, and stock-room, and Mr. Waterman was the entire force, manufacturing, sales, and accounting. That was in 1884, and the output that year was 200 pens, made and sold by the inventor. In February, 1905, a six-story building is required by the sales, business, and accounting offices and store rooms, while a separate factory is in operation for the rubber work and another for the gold pens; the employees run into the hundreds, and the product exceeds three-quarters of a million per year. This, in a nutshell, is the story of the growth of this great enterprise. The following figures illustrate the increase even more graphically: In 1884 the output was 200; 1885, 500; 1886, 2,000; 1887, 5,000; 1888, 9,000; 1889, 12,000; 1890, 18,000; 1891, 22,000; 1892, 28,000; 1893, 38,000; 1894, 42,000—2,100 per cent. increase in ten years; 1895, 63,000; 1896, 87,000; 1897, 98,000; 1898, 139,000; 1899, 185,000; 1900, 227,000; 1901, 326,000; 1902, 400,000; 1903, 500,000; 1904, 750,000.

The whole structure of this great tree is based on the quality of the seed—the pen itself. When Mr. Waterman made the first Waterman's Ideal, there were fountain pens of the sort on the market, but they were a nuisance, not a necessity. The Waterman's Ideal of 1884 was the best of its kind. Many of those made that year are in use to-day, and it could be depended upon to do its work. As the years sped by, improvements were invented, and so this perfect writing instrument was kept first by sheer quality.

The ground was ready for the establishing and growth of this tree. People were tired of fixing quills, of dipping pens, and of pointing pencils. Busy people were looking for an instrument that would transfer their thoughts to paper with the least effort and the greatest certainty: Waterman's Ideal Fountain Pen fulfilled all these conditions perfectly. The ground, contrary to the usual procedure, increased in proportion. From 200 to more than 750,000 pens per year in twenty-one years of rapid growth.

No growth, however, can be symmetrical and solid if care is not taken to cultivate the soil and prevent disease. The L. E. Waterman Company is a tree whose increase has been fostered by the rains of kind words spoken by satisfied buyers; the ground in which it grows has been fertilized by the method of fair dealing and help to those who handle its products. The ills that beset all natural growths have been warded off by the sheer strength of the structure itself. No vulnerable points have ever been found in the L. E. Waterman Company. Their product has always been above reproach.

Every feature of the growing thing has some particular use; every one of the few parts of the Waterman's Ideal Fountain Pen has its particular purpose also; nothing is superfluous, nothing essential is left out, there is nothing to get out of order. All those things (seeming conveniences, perhaps) that might complicate the simple workings of the pen are omitted. Nothing can hurt the Waterman's Ideal but gross abuse.

It was recognized very early that no two hands were alike and that different people required different nibs. These writing instruments, therefore, were supplied with a great variety of points, and no buyer is urged to buy what does not suit him. It is the policy of the company to exchange till the customer is suited. In this way, any one, from the person who needs the heavy nib necessary to make carbon copies of his writing, to the artist who draws hair lines, is fitted with a pen of his liking, and there is no dissatisfied talk to mar the reputation of the pen.

It is its adaptability to every need that accounts for the universal use of the Waterman's Ideal Fountain Pen. The boy who saved up his money, bought a pen, and used it all the week writing express receipts, and Saturday afternoon to keep baseball scores, was as much entitled to consideration in the Company's eyes as the bank president who used his to sign checks.

In one respect this thriving commercial growth and the fruits of it are quite unlike the natural tree; for there are few, if any, fruits that meet the needs and tastes of every one, while the product of the L. E.

Waterman Company is getting to be a necessity to almost everybody, and all those who write would find it a convenience that they would never part with had they once experienced its joys. Here are some of the unusual uses to which Waterman's Ideals have been put in addition to the keeping of baseball scores already mentioned: Marking uniforms and linen during a recent campaign; making memoranda on the field of battle in war correspondents' note-books; making, in the hands of a skilful draughtsman, drawings that cannot be told from wood engravings; the reporting of rapidly given testimony in court. But it is in the lightening of the burden of every writer, whether of personal correspondence, literary matter, school compositions, or accounts, that this useful tool has gained its popularity. The range of this fruit is bounded by no zone, nor is its growth hampered by climatic conditions, for it is found in all countries and climes and is used by all kinds and conditions of people.

The Waterman Ideal is the most cosmopolitan of writing instruments, for it records all tongues and is alike fluent for the poet, the composer of music, or the writer of chance postal-cards at the mail-box. This extensive use of the fruit of the Waterman tree is not a matter of chance; it is due to its entire reliability under all conditions and its adaptability to every peculiarity of every user.

The making of this necessary recorder seems a simple matter until one has followed the process. The gold nib alone requires between sixty and seventy operations; and the hard rubber barrel about forty more. When one considers the number of processes through which each completed pen passed, and the costly quality of the material used, the wonder is that Waterman's Ideal can be sold so cheaply. There is no doubt that a fountain pen can be produced with much less work, but not Waterman's Ideal Fountain Pen. For this masterpiece specially trained workmen are employed in making, and experts do the work of assembling, so that no imperfect pen leaves the maker's hands.

Though great care is expended in the making of these pens, equal effort is spent in the marketing of them: there is hardly a town or village in this country that cannot boast its display. The stock of pens in the village stationery store, jewelry shop, or pharmacy is always kept up to requirements of the buyers, and the same system of exchange, until the customer is suited, is in force as in the main office on Broadway, New York. Practically, the buyer in places remote from the great centers has the same facilities as the dweller in the chief metropolis. So thoroughly does the L. E. Waterman Company realize that satisfied patrons are its best asset, that a bound book is issued by them for the education of people who sell their pens throughout the country. It is practically a correspondence course on pen selling and pen using, to the direct advantage of the purchaser, who gets what he needs and what suits him.

It is thoroughly understood that if a pen does not satisfy the buyer it is not because fountain pens are not suited to that writer, but because that particular style of point or holder does not fit the peculiarities of that hand. This accounts for the great care expended in training the pen-clerks who sell the Waterman product. There are Waterman Ideals to fit any hand.

Twenty-one years ago the small shoot of the L. E. Waterman Company appeared in an obscure place full of vigor and thriving in spite of many adverse conditions. To-day the great tree has reached its majority, its fruits are to be found in every quarter of the globe, its roots extend to many lands, and its growth in its twenty-first year is quite as rapid and as symmetrical as in the early years of its vigorous youth.

The main stem of this great tree is the six-story building, corner of Cortlandt Street and Broadway, but three short blocks from the place where the seed was planted. A factory at Seymour, Conn., where the rubber barrels are made, and a gold pen factory in lower New York City, are offshoots of the main plant.

The inventor of this almost indispensable writing instrument planted the seed so many years ago with a confidence in the future of the great tree that should grow from it that nothing could shake. The tree grew, and Waterman's Ideal came into more and more common use, but not until the eve of its twenty-first birthday was its universal use and unrivalled quality officially recognized. Up to 1904, fountain pens were not considered worthy to put be in the Grand Prize class at international expositions, but at the St. Louis World's Fair Waterman's Ideals received the only Grand Prize for a fountain pen, and one of the four awarded to all the varied industries in the great Palace of Manufactures. Not until this pen is in the hand of every one who writes (and this will come about as soon as people realize what a convenience it is) will the L. E. Waterman Company tree cease from growing.

# Superb English Delphiniums

FOR twenty-five years we have been urging the many advantages of gardening with Hardy Plants, and now that these advantages are pretty generally recognized we wish to call attention to some of the better varieties which are not well known. Everybody knows about the good qualities of Paeonies, Phloxes, and Hollyhocks, but there are scores of plants equally as good which are comparatively unknown. Among the best of these are the superb **English Delphiniums.** Tall, stately and picturesque in habit, they produce immense spikes of flowers of every imaginable shade of blue for a very long season during the summer. The colors are often combined with various shades of bronze, sometimes with white eyes, and the range of colors includes plums, purples, white, and primrose yellow. The flower spikes are sometimes two feet in length, and the variety and combination coloring is lovely beyond description. The plants range from three to seven feet in height and will thrive in any soil except in a very light and sandy one, and even in this if it is liberally enriched with well-rotted cow manure. We have the best and the only good collection of English Delphiniums in America. They are grown from the finest collections in England.

## Special Offer of Improved English Delphiniums

| | | | |
|---|---|---|---|
| Fine mixed English, | $1.50 per dozen, | $10.00 per 100 |
| English, in separate colors, | 2.00 " | 13.00 " |
| Selected varieties, selected from thousands of seedlings grown from a famous named collection, | 3.00 " | 20.00 " |
| Extra selected varieties, $ .50 each, | 5.00 " | |
| White varieties, 1.00 " | | |

We have the largest, finest and most comprehensive stock of Hardy Plants in America, including three hundred varieties of the choicest Paeonies, one hundred varieties of Japanese and European Tree Paeonies, including extra large specimens, and also the largest collection of Japanese Iris in the world and an unsurpassed collection of named Phloxes. Our illustrated catalogue describing these and hundreds of other Hardy Plants, Trees, and Shrubs will be sent on request.

**"A Plea for Hardy Plants,"** by J. Wilkinson Elliott, contains much information about Hardy Gardens, with plans for their arrangement. We have made arrangements with the publishers of this book to furnish it to customers at a very low price. Particulars on request.

**ELLIOTT NURSERY CO.**
**PITTSBURG, PA.**

# The Garden Magazine

VOL. I.—NO. 1 FEBRUARY, 1905 { ONE DOLLAR A YEAR / TEN CENTS A COPY

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*Wilhelm Miller, Editor* *Cover design by Henry Troth* *Doubleday, Page & Company, 133–137 East 16th St., New York*

[For the purpose of reckoning dates, New York city is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

## The Five Most Important Things

PLAN your garden; make a diagram.

Send for catalogues now. Order seeds, plants, and tools now, if you want better goods for the same money.

Study fertilizers, and decide what you want, where to get it, and how much to pay.

Resolve to kill the bugs this year. Study spraying, and get your spraying outfit now. Don't put this off till March. See the new department, "Killing the Bugs."

Build a coldframe and a hotbed.

### OUTDOOR WORK IN THE NORTH

On pleasant days, prune apple-trees and grape vines. See article by Professor Craig.

Mulch strawberries and the hardy border if they were not covered in the autumn.

Manure the lawn, or, better still, scatter bone-meal on the snow; it harbors no weed seeds.

Haul out manure to the vegetable garden as fast as it is made, or else keep it under cover and fork it over every week.

Plan any grading or draining you have in mind. Time will be too valuable for this next month.

Remove roots and stones. Possibly the stones may help to make a good rockery.

Unless you have previously spread manure on the ground beneath the vines, shrubs and evergreens, do it now.

### HOW TO RAISE EARLY VEGETABLES

Make or buy a hotbed before February 1st, and you can have home-grown radishes in February. A crop can be raised in twenty-one days if you know how!

If you want fresh vegetables in May, sow any time in February in hotbeds the following seeds, in order to have strong young plants to set outdoors April 15th or whenever the danger of severe frost is past:

Early cauliflower, if you want the most delicious member of the cabbage tribe out of season.

Kohlrabi, one of the good things the Germans appreciate and we don't know. Looks something like an above-ground turnip, but tastes better and has a flavor of its own.

Lettuce, next to radishes, the easiest and quickest crop. Will make heads in coldframes by May 1st.

Leeks, if you want to have savory soups.

If you care for young onions, crisp and tender, now's the time!

Tomatoes may gain a little on the season if transplanted into pots and kept pot-grown until settled weather (end of May), then turned out of pots into the open garden.

If you like a salad plant with a "tang" to it, try endive, and tie up the plants so they blanch. When you once acquire the taste, nothing else will do.

### FLOWERS WITHOUT A HOTBED

Sow now in flats in the home window the following flower seeds:

To make the autumn red, scarlet sage or salvia.

To fill gaps in the hardy border, single dahlias.

For hanging-baskets, the cigar plant (*Cuphea Llavæ*).

If you want it at all, now is the time to start ageratum.

For May bloom indoors, ten weeks' stock (*Matthiola incana*, var. *amœna*).

To cover permanent bulb-beds after the spring flowers are gone, try verbenas.

For edging the garden walks, tufted pansies. If sown now, they will bloom all summer.

For a trailing-vine for a veranda-box, the variegated periwinkle (*Vinca minor*, var. *alba* or *aurea*).

If you want an annual vine on your porch before the permanent ones are large enough to cover it, try *Cobœa scandens*.

For a part of the grounds where you want a big mass of color in September try cosmos, and tie it to chicken wire.

For large specimen plants in twelve-inch pots for hall and porch decoration, sow seeds of cup-and-saucer Canterbury bells.

For a summer bed on the North side of a building, where there is plenty of air and diffused light without strong winds or direct sunlight, try tuberous begonias.

If you want a white-leaved foliage plant for a flower bed, sow seeds now of one of the dusty millers.

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1. The Japanese iris, largest of the family. Flowers nine to twelve inches across. A moisture-loving species. The flowers are flat—i. e., they have no upright petals

# The Best Irises—By Neltje Blanchan

Photographs by F. A. Waugh

2. The Siberian iris, distinguished by its early season and tall, slender stalks. It blooms in May, or about two weeks before the German iris

LITTLE wonder that a plant so boldly decorative in outline and bearing a flower of exquisite coloring so marvelously formed should make its strongest appeal to the artistic Japanese. From these foremost gardeners of the world has come a strain of irises that neither orchids nor lilies can rival in beauty of form, texture, coloring, markings, and general effectiveness. In the Mikado's garden, under ideal cultural conditions—that is to say, in rich, warm, sunny, alluvial land—the blossoms will measure from nine to twelve inches across their flat petals. Around the shores of those miniature lakes and streams in which the Japanese gardener, however humble, delights, the irises are no less lovely because a small garden demands that they be of lesser size. Every one appreciates the iris in Japan. Therefore, on the most costly *cloisonné* and ceramic, as well as on "many a vase and jar, on many a screen and fan," whose decorator may receive only an eighth of a cent for his sketchy painting, this flower, imperial and democratic, is the most familiar. For the artist, at least, its value is double that of the national chrysanthemum.

Yet the *Iris Kæmpferi* may be as easily grown as the potato. Moreover, it is perfectly hardy. High, dry lands do not suit its moisture-loving roots, but good garden soil, enriched with thoroughly decayed manure, deeply dug in and well watered during May and June—the blossom months in the northeastern United States—will produce flowers of wonderful size. Do not select a shady place for your irises. They thrive under full exposure to the sun, but moisture they must have to bloom their best, and sometimes their roots will penetrate two feet deep to get it. Naturalized in the water garden, where the tall, narrow, blade-like leaves rise in phalanxes around the shore and the stately beauty of the flowers is reflected in the mirror below, they are ideally situated; but let no one forego the delight of growing Japanese irises merely because he has not a pond or stream on his place. Some exceedingly fine specimens have been produced in a city back yard.

Now that the Occidental as well as the Oriental hybridizers produce an enormous number of seedlings every year, new varieties are constantly offered in the catalogues —so many that, were their charms described in Japanese, they could scarcely be more bewildering to the American amateur. The original parents of Kæmpfer's lovely tribe were *I. lævigata* with drooping "petals," modeled on the natural rule-of-three plan, and *I. setosa* with broader, more horizontal "petals," the three outer and the three inner

ones being of equal size in many of its new varieties, giving a strange regular symmetry to the flower. The pernicious trick of doubling and multiplying "petals"—a common vice of the up-to-date sport—quite destroys the iris's natural grace of outline, which is its chief characteristic and charm. Blotches and patches of color like a circus pony's sadly detract from its stately dignity. Surely the range of pure colors, from silvery white, through pale blue, lilac, plum, and purples, with exquisite veinings and star-like centers of contrasting shades or of gold, should satisfy the most exacting eye.

German irises differ from the Japanese in having shorter, broader, blade-like leaves and flowers not yet induced to lie flat, having three strongly recurved and handsomely marked "petals" or falls and three upright standards. Both kinds have creeping stems, and it is by division of these fleshy, thong-like roots that the plants are most successfully propagated. Set out early in the autumn, they should bloom the following May. It takes at least three years to produce flowers from seed—an interesting experiment for the amateur hybridizer, but one rarely tried except by commercial men. While not so impressively magnificent as the Japanese strain, the German irises are nevertheless very beautiful; their coloring including white, yellow, lilac, and purple—either one of which every iris would be in a state of nature—and, in addition, some queer browns and rich velvety maroons combined with yellows which are unusual and effective.

We hear of the common blue flag. In reality it is not a blue, but a purple. Yet there is a little dwarf iris, a variety of the Crimean *Iris pumila* and *I. Persica*, which are true blue—that heavenly color all too rare in our gardens.

No plants are of easier culture than the German irises. They like a dry soil, rich food, a sunny, open situation, and plenty of room to spread, but they do not insist upon any of these conditions. Neglect them, starve them, crowd them among the shrubbery, stifle them in the herbaceous border, bury them in the rock garden, still they will bloom—sulkily, perhaps, but far more than they really ought, considering. Give them a rich dinner once a year, and let them alone thereafter, they will repay you most lavishly. Just as the gorgeous pageant of Dutch bulbs—jonquils, narcissi, and tulips—passes, the German irises begin their royal show, several weeks before their Japanese sisters unfurl their banners. Special emphasis should be laid upon letting all irises alone. They resent being fussed over. If it is necessary to divide a clump, cut it in half with a sharp spade and fill in the hole with old, well-rotted manure. Don't disturb the entire clump in order to take away part of it, and don't bury the rhizome when you plant the root.

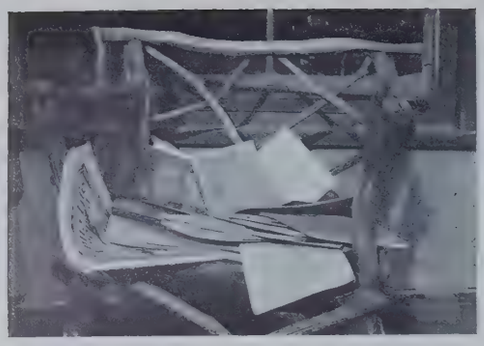
On the streets of London and Paris and in the market-places of western Europe are sold bushels of the very beautiful Spanish irises, whose charms are not yet appreciated here as they deserve to be. In loose, friable garden soil, in a sheltered corner, they yield a lovely crop of flowers to cut for the house. More dainty than the larger German and Japanese irises, they are airily poised like butterflies on the tip of tall, slender, swaying stems amid narrow, grass-like blades. Secure a ribbon of soft lead from your plumber, place it in the bottom of a bowl, pinch it about the iris stems, and so arrange a few that they appear to be growing out of the water. Pebbles conceal the lead and help the illusion. From the Japanese we are slowly learning not to bunch a miscellaneous lot of cut flowers in wads for our vases, but to give each flower its natural, characteristic attitude and isolation.

English irises, another group of these endlessly beautiful plants, grow from bulbs like the Spanish strain, but in form and poise the flowers more closely resemble the Japanese. Coming toward the end of the iris season, which they prolong until the hot weather, they are especially desirable for those who tarry too long in the cities to enjoy the spring flowers about their summer cottages. Bulbous irises suffer from moisture and bleak exposure. A dry soil, even clear sand at the base of the bulbs, preserves them from decay, and, while they must be well nourished if they are not to fail utterly, let no manure come in direct contact with these. The rhizomatous irises are the gross feeders.

Certain irises there are that should be in every garden. No one is too poor or too inexperienced to have at least one fine clump of Japanese or German irises; for instance, the early grayish-white Florentine "orris" (whose dried root furnishes the sachet of commerce), with its large grayish-white flowers, often six inches deep, the falls veined with yellow and green at the base with an orange-yellow beard; or *I. variegata*, with large, slightly scented flowers, their standards bright yellow, their falls claret-red heavily veined. The yellow flag of England, *I. pseudacorus*, is delightfully decorative, and cheap enough to naturalize in quantities with our own native species where one is so fortunate as to own a stream. In similar situations, or even in ditches, the small but showy Siberian flag in blue, white and purple varieties is a charmer. And now that irises are being so successfully forced in the greenhouses, there is not a month in the year when we may not have them in our homes.

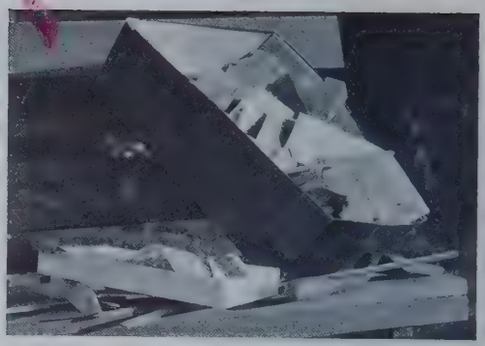
4. A German iris. Of the six showy parts, the three outer, which are reflexed, correspond to the calyx; the three inner or incurved ones to the petals

3. German iris (Iris Germanica and allied species). The most popular iris and the best for general conditions



5. A plan made in winter is more helpful than many books at planting time

6. A good time to plan the garden—when the snow is on the ground



7. A delightful confusion, but you will raise more and better vegetables if you make a plan

# How to Plan the Vegetable Garden—By Edith Loring Fullerton

THE BEST WAY TO RUN THE ROWS—SCHEMES FOR SAVING SPACE, AVOIDING HAND-LABOR, AND GROWING TWO CROPS ON THE SAME GROUND

Photographs by H. B. Fullerton; diagrams from sketches by the author

THE way to have more and better vegetables for less work is to plan the garden in February instead of waiting until May. Every one who fails to draw a diagram of his garden is likely to be swamped by the spring rush. Without a plan you are sure to plant too much of one thing and not enough of another. The only possible objection to planning the garden in winter is that it may "seem like work." The obvious reply is, "Don't make work of it. Enjoy it." If you have never tasted the joys of planning, begin now.

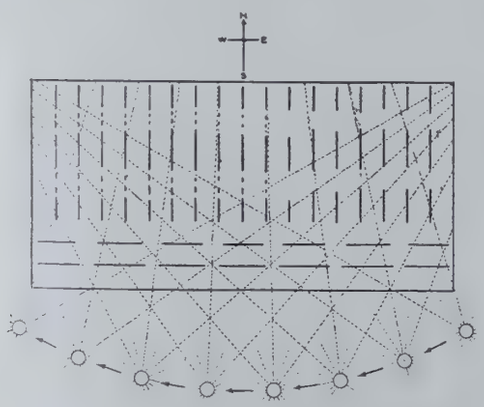
### HOW TO RUN THE ROWS

Let us consider first a medium-sized garden with a southern exposure and protection from the north winds. This, of course, will be the earliest garden, for it gets all the sunlight there is. (See Fig. 8.) If the rows run east and west, the rays of the sun strike only the southern side of the row. If, however, they run north and south, the sun's rays strike the eastern side of the row in the morning and the western side in the afternoon. The latter method seems to me to produce a more even and vigorous growth. Again, suppose the rows are planted east and west, the southern sun of summer will continuously draw the rows one way, southward only, thus pulling them out of plumb. This is another point in favor of north-and-south planting, for rows thus planted are drawn eastward by the morning sun, and this lean is corrected by the afternoon sun.

If the garden faces north (and by this I mean is unprotected from the north winds), would it not be possible to protect it on the northern and western sides by a hedge of privet, a vine-covered trellis or a grape arbor? The latter in this case would give the greatest amount of protection if made in the old-fashioned lattice style. Even a high board fence can be made a thing of beauty by covering it with vines, particularly climbing roses.

If your garden faces southeast and is entirely cut off from the western sun (Fig. 9), it will be better to run the rows northwest and southeast in order to get the greatest duration of sunlight, for in this situation every available ray is most valuable.

No matter how your garden may face, no matter what angles, curves or dimensions it may possess, you will see at once and very clearly the best thing to be done when you have it before you on paper with the area reached by the sun's rays laid out upon it.



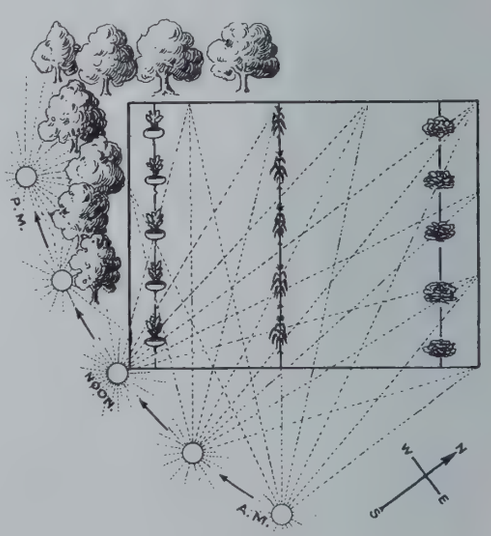
8. To prove that the ideal exposure for a garden is toward the south; also that the sun's rays strike every portion of rows that run north and south, while only the south side of rows running east and west get the benefit of the sun

### A "COMBINATION" GARDEN

Suppose you live in the suburbs upon a lot not more than 50 x 100 feet or even less. You can surely spare a little ground for a vegetable garden. I know of one such dear little home plot and this is how it was laid out. (Fig. 10.) It is a corner lot. On the west and south run the streets of a suburban village, with broad curbs and stone sidewalks. It is a fenceless town; hence it was easy to coax a lawn right down to the walk. A few evergreens were dumped in a procession at the southwest corner, an unhappy dogwood (naturally a shade-loving tree) was trying to live on the sunny west side, while fruit-trees were located on the almost sunless eastern side of the house. It was undoubtedly a creation of some landscape gardener who had to a certainty missed his calling, but he accidentally did one thing very wisely, and we forgave him. As he had exhausted all available space except the back-fence line, and had a number of small arbor-vitæ plants, he placed them along the north boundary, and they "did the rest," soon forming a beautiful, close and therefore effective wind-break, which was of great service to the garden.

A detailed plan of this garden is shown in Figure 11.

The first back bed at the eastern end was sown to lettuce and radishes, half and half; the second bed, beets; the third, beans; the fourth, tomatoes; the fifth, corn. The front beds were full of flowers which screened the low-growing vegetables, while the taller ones made a fine background for the gay colors. These were the flowers used, all of them showy kinds, suitable for cutting: The first bed at the eastern end, phlox; the second, nicotiana; the third, nasturtiums, climbing over a small fir-tree; the fourth, scabiosa; and the fifth, verbenas. The western boundary of the garden was an althea hedge against a wire fence. The fence was covered with




9. Showing why a garden that faces southeast should have its rows run northwest and southeast

scarlet runners, making a gorgeous bit against the street. At the front of all these beds was a strip of moss, curled parsley—backed by dainty Shirley poppies, making one of the most beautiful combinations imaginable.

There were enough vegetables of the kinds planted (except corn; and in my estimation it takes a large plot indeed to raise enough corn) to satisfy a family of three.

### TWO CROPS ON THE SAME GROUND

If you are wise you will plant late corn after the lettuce and radishes are out, and more lettuce, corn salad, or endive after the beans are out. Then if you care to raise late crops, cabbage, cauliflower or spinach could go in where the early corn grew, and in this manner make the small patch earn its living and pay big dividends.

Here is a plan for successional planting (Fig. 12). We will consider annuals only, the idea being to have the land in use all season. The first sowing of each row may be as follows: Row 1 is to have radishes and lettuce, either one-half or one-third of the row radishes, as you choose; row 2, beets; row 3, green beans and peas; row 4, early corn; row 5, tomatoes; row 6 (not shown), parsnips and carrots. When the early crops are out of row 1, it may be sown to middle-season corn. When the early beets are out of row 2 (or perhaps you have sown one-half this row early and one-half late beets), it may receive egg-plant or cauliflower. Row 3 may have summer lettuce or kale; row 4, lima beans; row 5 may have cabbage planted between the tomatoes, as the latter will be out in time to allow the former a chance to head. Carrots do not come out until late, and parsnips must be frozen to be at their best.

It is well to remember one thing in making this layout—do not let two vegetables of the same botanical family follow each other: for instance, lima beans should not follow green beans or peas, as these are all of one family and draw about the same elements from the soil. All members of the cabbage family are likely to have the same insects and diseases.

### A VEGETABLE GARDEN ARRANGED FOR BEAUTY

There is another suggestion in regard to planting I should like to make, and that is a Japanese or "radial" garden. Take the center of your garden, if it be not too large and of the proper proportions, and run the rows from this central point. This will give a vast number of opportunities for combining color effects, always considering relative heights and methods of growth (Fig. 14). The long rays must be spaced as close together to the central ring as the several vegetables will allow. I should think two feet would be a good average. If the rays are long, a wide divergence at their outer ends will result; short rows could be planted between for a part of the distance.

The center of the circle should be occupied by either a perennial or a plant that lasts late in the fall. Cardoon, that beautiful, silvery, cut-leaved plant, would be very handsome; parsnips, rhubarb, kale would be good.

The center or orb of this Japanese garden plan offers a capital opportunity for the exercise of ingenuity and individuality. One or more plants of broccoli surrounded by a circle of beets would make a striking effect. The tall, gracefully striped and variegated kales might be encircled by parsley or a large hill of corn, tall-growing, or the dainty variety hedged in by cabbage. In this case, the corn could be replaced by a transplanting of Sakurajima radish.

A lima-bean wigwam of poles, supported at the base by lettuce or Pe-tsai (Chinese cabbage), would please many. The combinations are endless, and a high or low center effect could be obtained to suit one's fancy.

Ray 1 could have lettuce and radishes (it runs due south); ray 2, peas; rays 3 and 7, corn; ray 4, beets; ray 5, scorzonera; ray 6, beans; ray 8, onions or leeks. The intermediate rows could be planted every other one to celery, and the others to parsley, carrots, Sakurajima radish, and parsnips. These all last well into the autumn, so that the garden would always look well.

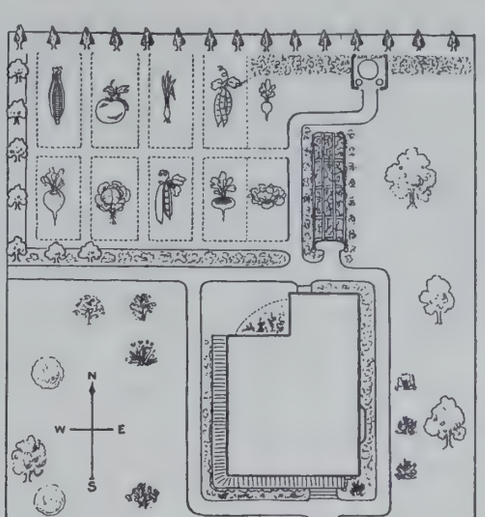
### THE FERTILIZER PROBLEM

There is one thing, however, that must not be forgotten, and that is the fertilization of the soil after each crop has been taken out and before another one has been put in, for you can't expect to grow good cabbage when the corn has taken sufficient food from the earth to enable it to grow a stalk six feet tall and mature two to six ears of corn!

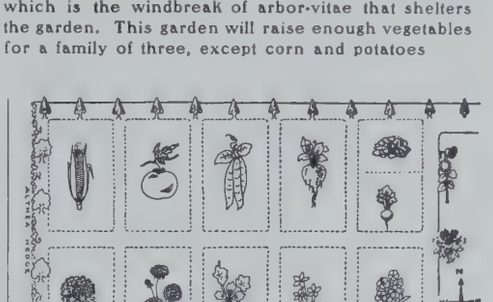
Suppose you have had a vegetable garden in the same spot for many years, and have given but scant fertilizer in that time, say, perhaps, nothing but manure, and you are wondering why your vegetables do not grow as rapidly and mature as perfectly as formerly. Could you spare that garden for one summer and sow it with cow-peas, soy beans or red clover, and plow that crop under in the autumn? These three varieties of plants (and there are many more like them) gather great quantities of nitrogen from the air. They have very long roots, and some possess little knobs, real nitrogen reservoirs, that store away the nitrogen which the leaves draw from the atmosphere. Nitrogen is the most difficult and expensive substance to obtain in fertilizer form, and is greatly sought after; it is used not only to develop quickly such crops as lettuce, but to force for a more prolonged period corn, beans, celery, etc. The readily soluble chemicals, such as nitrate of soda, are of course excellent, as they are quickly utilized by the plants, but because of their easy solubility they are soon washed away by rains. Moreover, they require moisture to render them available. The nitrogen storers are utilized to a greater extent each year. Their power is to absorb nitrogen from the air and to distribute it throughout the soil through the medium of their roots. When the stalks of these crops are plowed in, the nitrogen that they have gathered will be released as the plants decay. It is the cheapest way to buy nitrogen.

### "VACCINATED PEAS"

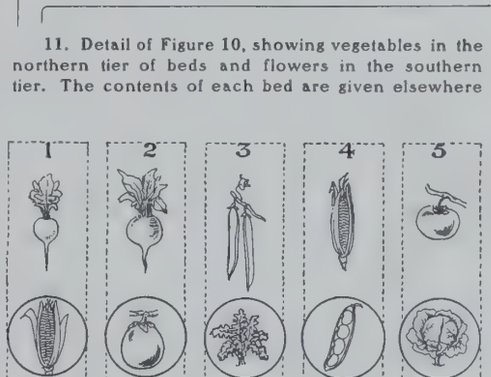
And as wonders never cease, the scientists have now captured the bacteria that attract




10. A suburban corner lot, the best feature of which is the windbreak of arbor-vitae that shelters the garden. This garden will raise enough vegetables for a family of three, except corn and potatoes

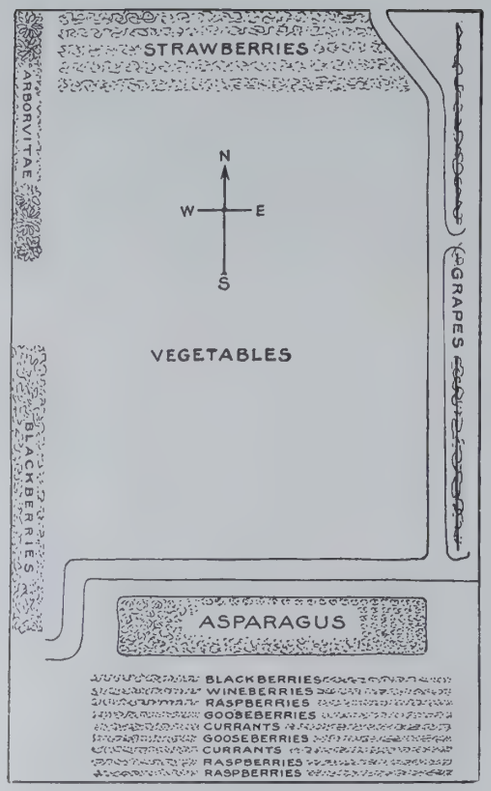



11. Detail of Figure 10, showing vegetables in the northern tier of beds and flowers in the southern tier. The contents of each bed are given elsewhere




12. Two crops on the same ground. The vegetables at the ends of the rows suggest the first planting; those in the middle indicate the succession crops

or urge the plants to draw the nitrogen from the air through the leaf and stalk into the root system. The bacteria trainer cultivates, tames or grows these small creatures, dries them, gives them to us to inoculate or vaccinate the seed or land, so that these plants will draw more nitrogen into the soil than they normally do, because, as in other manufacturing concerns, the supply keeps pace with demand. The Government gives us




13. The author's garden, showing the windbreak at the northwest, the perennial crops at one side as far as possible, and a big space free for plowing

"yeast cakes," as we call them, so there is no outgo but a postage stamp's value, and the returns are great indeed.

I tell you what I think I will do. When our garden is run out and has to be sown with legumes (that's what they call these doctor plants), I will ask my neighbors to let me raise all the peas the entire community needs that year, and I will sow the whole garden to "vaccinated" peas and supply the neighborhood; then the plants can be plowed under in the autumn. Try this, and the following spring sow bone meal and wood ashes, and a little lime if the soil has not had any for three or four years, and the vegetables of that season will say "thank you" so hard you will be able to carry off all the first prizes at the County Fair. (Fig. 15.)

### THE ADVANTAGES OF A COMPOST HEAP

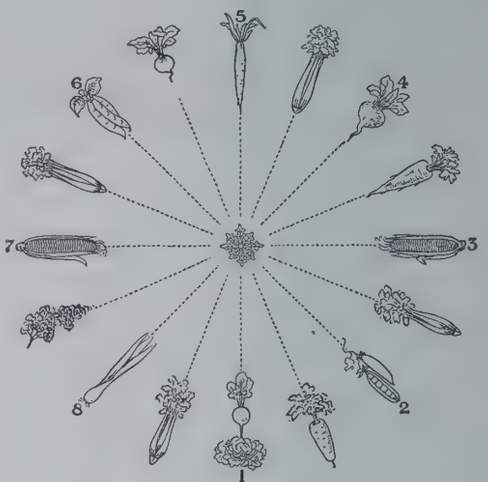
Suppose you have a new place where there never has been a garden. Choose your garden spot carefully, have it plowed up and harrowed, take out all the sod you can—but don't, I beg of you, throw it away, for it is better than a gold mine. Take the sod to some out-of-the-way corner of the place, turn it root-side up and leave it. I can hear you say "I have no out-of-the-way place, and it would look so terrible here all summer." Never mind. Wait a bit. We will fix that in a satisfactory way to a surety. Keep the good work up by throwing the waste leaves of cabbage, lettuce, beets, outside stalks of celery, potato tops, bean, pea, and tomato vines upon the pile. It is easy, with the compost heap near the garden, to throw all this valuable material where it will do the most good, and while keeping the garden looking neat you are adding heavily to your working capital and disposing of rubbish at less expense than in any other way. Throw the autumn leaves on it, also waste from the kitchen, if you have no chickens that will turn it to good account. Turn the heap over in the spring, sow a few morning-glory, nasturtium, or wild cucumber seed in and around the pile, and you will have a thing of beauty and a joy all summer. When the sods are rotted they are the finest kind of fertilizer, for they are the substance of the soil for years and years, and you are returning now the bulk of that which has been taken away as long as those particular sods have been growing.

Why can't you leave them in the garden? Because they will grow if they get the faintest chance, and you will be busier pulling up grass than you care to be that first year, and remember that a good compost heap cannot be overvalued.

### SMALL FRUITS

Let us take up small fruits for a moment, for no garden is complete without them. Blackberries, raspberries, gooseberries and wineberries are all "prickery," as the children call them, and should have a place to themselves, for it is very annoying, as well as mildly painful, to gather or to cultivate vegetables in close proximity to the thorns. I think it wise to give them a place all to themselves, somewhere else in the grounds, or, if territory be limited, plant them as the border to the vegetable garden. If your garden is inclosed by a fence, this opens up excellent possibilities, for a fence is a support and training-ground for your blackberries, raspberries and wineberries. Moreover, they should have a fence to keep them in good shape and within bounds anyhow. So if you do not care to use this inclosing medium for peas, beans and tomatoes, by all means train berry vines upon it.

The low-growing, virtually evergreen strawberries, with their beautifully formed leaves, are in some respects very human, their children (the runners) are always moving away and making new homes for themselves; also relying on the good mother plant for guidance and support, which she supplies through the leading-string. This luscious berry should always have a bed by itself. Give to it as much ground as you can afford to spare, to allow the plants to remain there two years; at the end of that time, take the runners you have coaxed to take root in small pots buried in the ground close by, and start a new bed in an entirely different portion of




14. A suggestion for a Japanese or radial garden, in which the vegetables are to be carefully considered as to color, height and decorative value

15. Prize vegetables at a county fair. The products of a friendly neighborhood rivalry

16. The strawberries that grew in the lea of the arbor-vitae hedge were the earliest in the neighborhood

17. The beginning of a compost heap—sods, leaves, old vines, and tops

18. Some of the flowers that screened the vegetables in the garden sketched in Figures 10 and 11

the garden. They are heavy feeders, and the vines do their best and heaviest bearing the second year, although they will yield a fair crop the third.

### THE AUTHOR'S GARDEN

May I sketch our garden for you, laying out the berries? (Fig. 13.) This is only one of many plans, but it seems to be entirely satisfactory for our situation with its southern exposure.

Remember that bush berries are fairly high in growth and should not shade the rest of the garden too much, and also keep in mind the fact that strawberries should be sheltered somewhat, if you wish early fruit. Of course, currants should go among the gooseberries, for one could not get along without their piquancy and brilliant coloring, especially if one take pride in one's jellies.

Sometimes there are gardens shaded from a valuable amount of sun by a row of trees. This can at times be remedied by topping the trees, which will stimulate the trees' growth, keep them fuller and in better form, and at the same time let the sun over them into the garden.

### THE PROBLEM OF INCLOSING A GARDEN

Is it desirable to have your garden inclosed? Is it necessary to keep out chickens, dogs, or children? I hope never your own children, for garden life means a fuller life for them, and being in mother's or father's garden will make the sowing, transplanting, thinning, and weeding so natural that their own garden will come as a matter of course. However, if the garden must be inclosed, let me offer a suggestion. Make a fence of locust posts, on which stretch one-inch-mesh chicken-wire. There may be a top and bottom rail, or not. It will furnish you a first-class pea, bean, and tomato trellis, and should a part be too shady for vegetables, plant wild cucumber or morning-glory, which will sow their own seed year after year and be no trouble to you, but, instead, a joy forever; or the entire fence may be made a thing of beauty by covering it with sweet peas or nasturtiums. When the peas and beans or tomatoes reach the top of the fence, which should be four feet, I think, cut the tops off and force the strength into the fruit. We use a combination of flowers and berries for the garden's division lines instead of a fence, currants, gooseberries, black-caps, and even the low-growing strawberry being utilized, and our friends at least always speak of the neat, well-kept appearance of our little garden plot.

# All the Foxgloves Worth Cultivating—By F. A. Waugh

Professor of Horticulture
Amherst College

THE FIRST OF A SERIES OF "LITTLE MONOGRAPHS" WRITTEN BY SPECIALISTS FOR THE EXPERT GARDENER, WHETHER AMATEUR OR PROFESSIONAL, AND DESIGNED TO BRING OUR KNOWLEDGE OF EACH SUBJECT UP TO DATE

Photographs by the author and HENRY TROTH

[EDITORIAL NOTE—When Professor Bailey completed his monumental Cyclopedia of American Horticulture, he announced that he considered it only a beginning; that his work was largely designed as a record of American horticulture at the beginning of the twentieth century, and that he hoped the Cyclopedia would be considered as a basis for further improvement. THE GARDEN MAGAZINE offers its columns to those who are in a position to contribute something to the advancement of horticultural science, and would be glad to co-operate with those who have investigations under way. Correspondence is invited. We particularly wish to hear from those who are growing complete collections of anything and those who are creating new varieties.

As a beginning, THE GARDEN MAGAZINE proposes two new things, which it is hoped will be considered improvements; first, that the readable or human portion of a monograph should come first, and the technical portion, which is only for reference, last. Second, that every species in cultivation should be provided with a "common" or English name, which should be passed upon by a committee representing all interests, and published in an official and formal way. The ornithologists have provided every bird with a vernacular name, to the great benefit of bird study; each wild flower in Britton and Brown's "Illustrated Flora" has an English name, and the time is now ripe for giving one to every cultivated plant.

Professor Waugh's article is the first of a new type of horticultural writing, in which the point of view is primarily human and horticultural, not the dry-as-dust botanical. The old style "alphabetical monograph" merely *describes* species; it does not *distinguish* them. This new department will do both, and hopes to be interesting also, as well as practical. The new plan combines the convenience of the alphabetical arrangement with the accuracy of the "key" arrangement, which alone can give one a grasp of the whole genus in the shortest possible time.]

THE common foxglove is, or ought to be, one of the twelve most popular "hardy perennials." About the second week in July, when the foxglove is the queen of the border, there is a certain moment when each stately spire is at its best—the moment when the lowest flowers are quite open and the upper ones successively smaller, until the topmost buds are merely little dots of green.

It is impossible to resist the spirit of the foxglove; its whole expression is one of aspiration. Every one who has the rudiments of an imagination in him thinks at once of church towers and bells. Although the foliage is rather coarse, the whole plant is one of the stateliest of perennials, having the same sort of formal beauty as the larkspur, which enjoys a later reign in the same border.

The foxglove is one of the commonest English wildflowers, and there are some localities in America where it has run wild, but not in great masses as in Europe.

The common foxglove has two distinct uses. The typical, or purple-flowered form, is best for wild gardens or for those hardy borders which are not kept up to the highest mark of neatness. In such places the foxglove "self-sows" and finally makes glorious colonies. But for the most refined borders the appropriate thing is the gloxinia-flowered strain—so called because the flowers are larger and spotted in the throat like the gorgeous gloxinias of the greenhouse. For a certain chaste effect the white-flowered variety of this strain (*Digitalis purpurea*, var. *gloxiniæflora alba*) is unrivalled in the genus. It is difficult to keep these refined foxgloves up to their best, and many people complain that their high-priced varieties revert to the original type. The explanation usually is that the uncommon forms have not had the uncommon treatment they deserve, as will be explained forthwith.

The common foxglove is usually a biennial, which sometimes lasts three or four years, and the seeds are generally sown in spring, Unless well cared for, they may not make large enough plants by autumn to live out-

19. The plant known to the trade as Digitalis grandiflora. It is probably D. ambigua

doors all winter, and they do not flower until the second year. The safest way, and the only way to get the best results from the choice strains, is to sow the seed in August or early September, carry the plants over the winter in coldframes, and set them outdoors the following spring, when they will flower splendidly. This saves a year, in a way, making the foxglove a sort of annual. It is worth all the trouble, if any one wants something better than his neighbors.

Of the eighteen known species, not more than eight are worth cultivating, and of course the common one is best. The second place I should give to the woolly foxglove (*D. lanata*), but the whole collection is worth growing (if you like to grow "collections"), and inasmuch as seeds can be cheaply imported from Germany and France the whole set could be had for a dollar.

All the kinds are easily raised from seed. Sow these in a warm bed or flat, and prick off the young plants when two or three inches high into frames, nursery rows, or permanent borders. When once established, the perennial kinds can, of course, be divided with a spade.

When the seed is sown in spring, the plants should be grown one summer in the nursery before being transplanted to the border.

The common foxglove is a very valuable plant for old-fashioned gardens (which are just now the new fashion), for borders and for park bedding. In most cases they should have a good background, such as trees, shrubbery, or a wall. They should not be planted with anything which overtops them, and great care should be taken not to bring them alongside other flowers with dazzling colors, especially reds. Generally they look best when standing rather by themselves, or in borders where they plainly predominate.

20. Spires of the common old-fashioned foxglove (Digitalis purpurea). It grows two or three feet high and has purplish flowers about two inches long. The throat is spotted

INDEX TO SPECIES OF DIGITALIS

Species in **black-faced** type; synonyms in *Italic*; varieties in Roman.

**ambigua**, 6.
**ferruginea**, 5.
gloxiniæflora, 1.
gloxiniæflora alba, 1.
*grandiflora*, 6.
**laciniata**, 8.
**laevigata**, 4.
**lanata**, 7.
**Mariana**, 2.
monstrosa, 1.
*ochroleuca*, 6.
**purpurea**, 1.
*Sibirica*, 7.
**Thapsi**, 3.

HOW TO USE THE KEY

If you have a flower and want to know whether it is correctly named (probably one quarter of the trade names are more or less inaccurate), the "key" will help you to settle the matter in two minutes, without reading eight tedious descriptions which don't distinguish. First choose between the A's, then between the B's, and so on. The indention also helps the eye. A common-sense key for horticulturists should be based on garden characters, such as the color of the flowers, the season of bloom, the height of the plant, etc. But these are often worthless unless checked by technical botanical characters, and these are given in the descriptions below, using as far as possible the English language instead of the botanical.

KEY TO THE GARDEN FOXGLOVES

A. *Color of fls. purplish or white.*
  B. *Plant biennial or nearly so.* 1. **purpurea**
  BB. *Plant truly perennial.*
    C. *Height 1 to 2 ft.* ..... 2. **Mariana**
    CC. *Height 2 to 4 ft.* ..... 3. **Thapsi**
AA. *Color of fls. reddish brown* ..... 4. **laevigata**
AAA. *Color of fls. yellow or yellowish.*
  B. *Height 4 to 6 ft.* ..... 5. **ferruginea**
  BB. *Height 2 to 4 ft.*
    C. *Fls. marked with brown.* 6. **ambigua**
    CC. *Fls. self-colored.* ..... 7. **lanata**
  BBB. *Height 1 to 2 ft.* ..... 8. **laciniata**

DESCRIPTION OF THE SPECIES

1. **purpurea,** Linn. COMMON FOXGLOVE. A biennial herb, sometimes lasting for three or four years, sometimes treated more like an annual. Height 2–3 ft.: leaves rough, slightly downy, long, irregular spatulate: flowers large, about 2 in. long, from white to purple, or yellow, spotted. Var. **gloxiniaeflora,** Hort. is larger, more robust, with larger flowers and longer spikes. This is the best form for cultivation. Var. **gloxiniaeflora alba** is white. Var. **monstrosa,** Hort. is a monstrous variety, having a big bell-shaped blossom at the apex of each raceme.

2. **Mariana,** Boiss. SPANISH FOXGLOVE. Perennial, 1–2 ft. high: flowers rose or reddish; corolla bearded on the lower part inside and marked with brownish-red spots. Spain.

3. **Thapsi,** Linn. MULLEIN-LEAVED FOXGLOVE. Perennial, 2–4 ft. high: leaves oblong, rugose, tomentose, undulate-crenate, decurrent: flowers purple, with blood-red spots. July and August. Western Europe.

4. **laevigata,** Waldst. SMOOTH FOXGLOVE. Perennial, 2–3 ft.: flowers scattered, glabrous, corolla fulvous, reticulated, lip white, ciliated: leaves linear-lanceolate: radical leaves obovate-lanceolate. July. Danube and Greece.

5. **ferruginea,** Linn (*D. aurea*). RUSTY FOXGLOVE. Biennial, 4–6 ft. high: stems very leafy: leaves glabrous, sometimes ciliate: flowers rusty yellow, more or less reticulate, downy on the outside; lower lip of corolla ovate, entire, bearded. July. Europe.

6. **ambigua,** Murr. *(D. grandiflora, D. ochroleuca.)* LONG-FLOWERED FOXGLOVE. Perennial, 2–3 ft. high: leaves ovate-lanceolate, coarsely serrate, sessile, downy underneath: flowers 2 in. long, yellowish marked with brown. Europe and W. Asia.

21. The woolly foxglove, Digitalis lanata. It is the second best species and deserves to be better known

7. **lanata,** Ehrh. (This is perhaps the same as *D. Sibirica.*) WOOLLY FOXGLOVE. Perennial, 2–3 ft.: leaves oblong, ciliate: flowers 1–1½ in. long, grayish or creamy yellow, downy in a dense, many-flowered raceme; bracts shorter than the flowers. July and August.

8. **laciniata,** Lindl. CUT-LEAVED FOXGLOVE. Perennial, 1½–2 ft.: flowers yellow, downy, with ovate bearded segments, in racemes, bracts shorter than the pedicels. June. Spain.

CHARACTERS OF THE GENUS

**Digitalis.** (Family *Scrophulariaceæ.*) A genus of hardy biennial or perennial herbs numbering about eighteen or twenty species, of which only one is commonly cultivated in gardens. Numerous hybrids have been made, some of which are apparently cultivated under species names. Flowers are white, yellowish, or purplish, sometimes spotted, borne in tall racemes; corolla tubular, funnel-shaped, not quite regular, 4-lobed at the top, the lobes unequal and oblique, the upper segment shorter than the lower segment or lip: leaves usually in a large tuft at the base with a few much smaller leaves along the stem.

22. The improved or gloxinia-flowered strain of foxglove, which requires special culture. The best results are attained by sowing in autumn and keeping young plants over winter in coldframes

# Originality in Gardens—By L. H. Bailey

Director of the College of Agriculture, Cornell University

WHY SO MANY AMERICAN GARDENS ARE COMMONPLACE OR UNIMAGINATIVE—SUGGESTIONS FOR MAKING THEM DISTINCTIVE—FIVE GARDENS THAT EXHIBIT CREATIVE GENIUS AND SHOW THE POSSIBILITIES OF ADAPTATION

ORIGINALITY in gardens, as in everything else, may be good or bad One of the most "original" gardens I ever saw was in a little town in southern Michigan It was a mere front yard, I suppose not more than fifty feet square. It was an intricate geometrical pattern, as clever as the design of a carpet, with diminutive splashes of gravel, knots of box, and shear-made treelets. It was entertainingly interesting and indescribably ugly.

The genius of true originality is as rare as common sense. To be original and not to be self-advertising may be called the rarest of attainments. In our efforts to be unlike others we become actors; and the pity of it is that everybody knows that we are acting. The true originality is not conscious of itself. Perhaps my reader will be able to make some application of these handsome sentences: if so, he is to be congratulated. I meant only to say that the best originality in gardens consists merely in working out to perfection some idea that will exactly adapt the place to its conditions and surroundings.

The best window-garden I ever saw was made by a woman who probably knew less than a dozen kinds of plants. The place was a three-window bay, of which the center window was left bare of plants. The two side windows were staged with well-grown geraniums, oxalis, othonna, farfugium and two or three other very common things, and festooned with German ivy. The poorest window-garden I ever saw was my own, with plants that every one knew were bought of the florist.

The above example gives the key to good original gardens—the garden must be one's own in the sense that one makes it or directs it so that it shall express the very spirit of the place and of the owner.

Last summer I drove through a beautiful well-wooded road in southeastern England. At one place the rear of a house stood close against the highway, presenting no unusual point of interest to the passer-by. I drove in at the gate, and behold! a garden such as poets dream of! And in truth it is a poet's garden. An open space of velvet lawn, sides piled high with lusty growth of tree and shrub and herbaceous plants, in the distance wide sweep of farm lands, at its back the fine old English residence set with pleasant vines —this was the picture. I thought I had never seen so choice a bit, and yet there was nothing over-wrought or high-strung in it. I saw many beautiful plants, but the effect of the whole was supreme. It was as truly a picture as if the image of it had been put on canvas. If the reader has read "In Veronica's Garden" or "The Garden I Love," he will know what garden I mean.

This garden illustrates a fundamental difference, I think, between the English and the American garden. The Englishman's garden is well-nigh as essential as his house. It is like an extra room to the residence. It is for the family rather than for the public. It therefore works itself into the developing consciousness of children, and garden-love becomes as much a part of the person as books and furniture and music do. With them, the love of the soil is bred in the bone. Englishmen of all classes love farming and gardening. In this respect our conglomerate people are centuries behind the English. The American garden is likely to be all in the front yard. It is usually of the look-at-me kind. It is made for the public to see. This may contribute to public spirit and civic betterment, but it loses in originality and vitality.

One of the most original gardens I know is that of Mrs. Annie L. Jack, in the Province of Quebec. Mrs. Jack is herself a practical garden-lover—this is essential to any originality in any garden. Her original materials were crude and austere—a severe climate, an open piece of land far in the country. It is a farm-wife's garden. Against the low stone house she laid out an acre in parallelogram, with the long way extending from the residence. The ground slopes slightly from the center to the sides. Trees for shelter were planted to the windward. On the opposite side were planted such hardy fruits as would thrive in the climate. Between these for many years vegetables were grown, being gradually forced into the freer inward borders as the trees and grape-vines developed. The center of the place was made a grass space, bold and generous in allowance. The borders are used mostly for flowers, with a liberal admixture of interesting shrubs. It will be seen that the general outline of the garden was rigidly determined; but there has been enough elasticity of details to allow of new planting schemes every year. From first to last it has been an experimental garden. The novelties here find place until they prove or disprove themselves, but there is always such a preponderance of staple things that the garden as a whole is never disappointing. In the secluded and sheltered nooks plants far out of their range may be grown. I saw a thriving small tree of *Magnolia stellata*. The reader will note that this is not a fruit-garden, or a vegetable-garden, or a flower-garden. It is merely a garden, in which all the æsthetic and practical desires may be satisfied. This garden has been profitable. Fruits and vegetables have been sold. The children worked in it and have learned to love it. One of the boys had a "garden" of his own when three years old. I was greatly impressed with the influence that this garden has had on the attitude and ideals of the family. If I am not mistaken, it has had an intellectual influence like a school and a spiritual influence like a church. Perhaps my reader has read homelike pieces of prose and verse that have come from this garden.

In the western part of San Francisco is a garden as unique as Mrs. Jack's, but in every way a contrast to it. It is a garden that appeals to you because of its interesting plants, and not as an organism. Mr. Abraham is a passionate lover of anything that has roots and leaves. He will cherish any sprig from any part of the world, and, what is more, he will make it grow if there is a germ of life left in it. He will put this plant wherever there is an unoccupied inch of ground—alongside a walk, in a corner by a crooked little greenhouse, in a pot in some out-of-the-way place, or in a row in the middle of the lot. Everything is full of plants—roses, palms, fuchsias, cacti, and a thousand things all growing in cheerful abandon. The very lack of arrangement is its charm. If it were "laid out" it would be as uninteresting as an antiquarian shop with mahogany counters and plate-glass windows. The place is the man. I would not change an item of it.

I like best those amateur gardens that seem to be a real part of the home. I have another such in mind; it is in central New York. It is a two-acre space, practically square. It lies a short distance back of the residence, and is bounded on the house side by a high-sheared evergreen hedge. When you visit this family you may sit in the drawing-room or you may walk straight through the house and through a gateway in the hedge and into the garden. There you find yourself in a little world of your own—the hedge in front and double rows of wind-break hemlocks and pines on the far boundaries. The walk leads straight on through well-clipped sodland and between entertaining rows of all manner of pleasant herbs, old and new. You may digress to a seat or two under trees, or keep straight on to a stone seat against a short hedge at the very end of the walk. At this seat, or at the front entrance to the garden, you may take side-paths to the pine-belt, and there walk in a noble avenue made by the duplicate lines of trees. As you turn the farthermost corner in this avenue you come on the vegetable garden, itself occupying one of the quarters of this charming place. You will find no elaborate display, no greenhouse, no corps of gardeners. It is only a quiet garden-space set off from a country of farm land and attached to a refined home.

Pope long ago wrote that the gardener should "consult the genius of the place in all." This is what makes the garden original and worth the while, because the "genius of the place" is different in every garden, and the expressing of it with plant materials portrays the capability and personality of the gardener.

# The Training and Pruning of Grapes—By John Craig

Professor of Horticulture
Cornell University

Photographs by L. H. Bailey, H. B. Fullerton, and Arthur Hewitt

ONE of the earliest recollections of the writer on grape-training matters was associated with a whitewashed board fence, covered or nearly covered with a luxuriant vine-growth thickly interspersed with huge clusters of black grapes. These grapes were in the garden of one of the residents of the little town of Niagara-on-the-Lake. The

23. Fan system—before trimming. This system is chiefly used in sections where vines have to be laid down and covered in autumn

variety was Black Hamburg. It was the wonderment of the community and the delight of the owner, Mr. Pafford, who was then mayor of this somewhat ancient, overgrown Canadian village. Think of growing and ripening Black Hamburg, a hothouse grape, in even the most favorable portion of Ontario! Mr. Pafford selected a warm place and made it warmer by cutting off the north winds with a board wall. He concentrated that still more by whitewashing this tight, high board fence on the south side. His grapes were carefully pruned so that each vine should have just so many fruit-bearing buds, the fruit so thinned that each cane should have just so many bunches, and the

24-25. Post training. This system is satisfactory only where there is plenty of heat to ripen the grapes, and is best for weak-growing varieties

berries thinned in the bunch so that all could develop fully. Hamburg was not the only European grape which Mr. Pafford grew. Golden Chasselas and Black Muscats also decorated his boundary line. Nor did he stop with these. Figs in variety were grown in this wonderful garden. Exhibits of these and of the grapes were made at the World's Fair in 1893 and caused people to open their eyes and ask questions. Mr. Pafford's Hamburg grapes will live in the history of that part of the country.

Of course, it goes without saying that the grapes and figs were taken from the trellis in winter, laid on the ground and well "happed" up with soil, forest leaves and other mulching material.

The amateur can often take advantage of walls upon which to train grapes; he can also use grapes for covering unsightly objects. They are exceedingly tractable and plastic by nature, and accommodate themselves to apparently difficult situations. The training of grapes is one thing. This means the adopting or choosing of a certain method of growing them. Whether the grower shall lead out two arms at right angles, and in opposite directions from the upright stem, and from these direct parallel upright canes; or whether he shall lead out in radiating fashion several canes from the base; or whether he shall lead long canes up over an arbor for the purpose of completely enshrouding it, are matters of training.

The pruning of grape-vines consists in cutting back the right amount of the current season's growth—the amount which experience says a grape of a certain habit of growth and certain amount of individual vigor should respond to properly. The pruning of grapes is a simple matter when their habit of growth is understood. We prune either to check or stimulate vigor, to encourage fruit production, or, on the other hand, to discourage it.

The fruit of all varieties we deal with in the North and East is borne on the wood produced during the current year's growth, and this wood springs from buds produced by last year's shoots. Each bud of last year—except those which come from suckers or base shoots—is a promise of a fruit-bearing shoot, and each shoot is a promise of from two to five bunches of grapes. These promises are not all fulfilled, but they are realized in proportion as the grape is healthy and the season favorable. It is, then, not difficult on a five- or six-year-old grape-vine to estimate with a fair degree of accuracy how many bunches of fruit we may have if we prune to leave fifteen or twenty fruit-bearing buds. With this general proposition in mind, the pruning of the grape is not difficult.

The purposes of training, on the other hand, are to dispose the grape suitably so that it may ripen its fruit evenly and well. The amateur can afford to train as his fancy dictates. The commercial grower must train to suit his climate, soil, varieties, and the kind of labor which he is obliged to employ. In either case, the object is to produce the approximate number of fruit-bearing shoots the vigor of the variety suggests that it should carry for the best results.

The "fan system" is used most freely where vines are protected in the autumn by

26. Fan system—after trimming. The vine should not be allowed to bear the second year after setting, and only a small crop during the third year

laying them down and covering them with soil. The canes are carried up from the ground in a divergent manner, in the form of a fan. The old canes are cut out and removed from time to time as they grow too rigid to allow of easy bending. At the close of the growing season, after the leaves have fallen, the greater number of the canes are cut back to the last bud. A few of the strongest are left, in order to carry the fruit to a greater height upon the trellis.

There is a tendency on the part of the grower who prunes after this fashion to allow too much wood to remain on the plant in the autumn, especially when it is young. The vine should not be allowed to bear the second year after setting out, and only a small crop the third year. I realize that instructions of this kind are much easier given than understood and carried out. A heavy crop of fruit borne by young vines the third year after planting will sometimes ruin the yield for two or three succeeding years, and occasionally destroy the vines. The prospective crop may be more or less accurately estimated by multiplying the number of buds by two; this kind of estimate may be used as a guide in pruning. The fan system aims at starting the canes near the ground, giving the vine practically several main stems.

The "high renewal" system, or modifications of it, is probably more generally adopted throughout commercial grape sections than any other. It aims at starting the head about two feet from the ground, so that the main branches are tied to the lower wire. The vine is usually started the second year with two canes striking out in Y-shaped fashion. In the fall of the same year all side shoots are cut back closely and the main canes cut back to four or five buds each. The third season, three or four of

27. Before trimming

28. After trimming

29. After trimming and tieing

The horizontal two-arm system, especially adapted to sections of the country where it is advisable to give the vines winter protection

the strongest shoots springing from the center of the head are allowed to grow. In the autumn these replace the outer arms, and are in turn replaced by them the following season. The aim is, then, to renew the fruiting canes from different parts of the old wood every year. The number of buds to be left will depend upon the strength of the variety and the individual plant. Concord, Niagara and Worden will carry with safety more wood than Moore's Early or Delaware, and this is true without reference to the method employed. As the canes grow they are tied to the wires of the trellis, distributing the foliage as much as possible. It is usually found necessary to go over the vineyard two, three and occasionally four times during the summer.

The "horizontal two-arm system" is especially adapted to sections of the country where it is advisable to give the vines winter protection. Two strong canes are trained in opposite directions. The laterals springing from these are trained perpendicularly. In the autumn the laterals are cut back to short one-eye spurs. When the spurs become weak they are renewed, as is an entire arm occasionally. This system calls for a four-wired trellis, in order to properly tie the strong upright growths. Well adapted to wall or high garden trellis, the three methods of training described thus far are all on the upright plan; in those which follow the vines hang down

The "four-cane Kniffin" is essentially a commercial system and exclusively adopted in field culture in certain parts of New York State. In this system the trellis consists of two wires. The main cane is carried to the top wire and from it an arm is trained each way on the two wires. The side canes are tied to the wires and the lower ends allowed to hang free. Several modifications of this system are in use.

We now come to over-head or arbor systems. In one of these systems (and there are many which may be modified to suit the needs of the amateur) the vines are carried up seven-foot posts and allowed to rest on cross wires, forming in this way a kind of arbor. One plan is to nail a cross-piece to each post at right angles to the pole. This extends three feet on each side. Three wires are stretched on these, one at each end, the other in the middle to the posts. The trellis is thus a horizontal one and six feet above the ground. An unbranched trunk is carried up to the middle wire and the canes spread either side from this point. A T-shaped head is considered the ideal form. Another over-head system is known as the "cross-wire Kniffin." In this a small post six or seven feet high is set for each vine. The tops of the posts are connected by cross wires. The vines are trained up the posts, and on reaching the top four arms are trained outward, one on each wire. In the autumn the arms are cut back to six or eight buds each. The amateur may start two canes from the ground, spreading as they rise, and may depend upon laterals to cover his arbor.

"Post training" is only satisfactory where there is plenty of heat to ripen the grapes, and gives fullest satisfaction with weak-growing varieties. Four- or five-foot stakes may be used. Two or three canes are trained up each year from the ground. It is strictly a renewal plan. Much summer pruning and pinching are required to regulate growth. But on the other hand, the vines may be tucked in four by four feet apart. Delaware, Golden Drop, and Campbell's Early can be grown on posts with some satisfaction.

Pruning of the annual kind may be done after the leaves are killed by frost or the wood is thoroughly ripened. When the vines are taken off the trellis, as in 30-degree-below-zero sections, the pruning is done just before laying the canes down in autumn. Where the vines do not need winter protection, the pruning may be done any convenient time during late fall or winter. It should not be deferred till the sap flows in spring, as vines pruned at this time are often weakened by excessive bleeding.

It is always desirable to remove the shoots that spring from or near the base of the vine, except when they are required for a special end. These shoots are quickly broken out, or nipped off when soft and succulent. A certain amount of shortening back is also desirable. This should not be done too early in the season. If pinched early in the growing season, a great mass of laterals is produced and the amount of work very much augmented.

30. An open arbor. The vines are trained upward in the most direct manner. A single stem from which laterals are carried off may be used, or two or more stems may be started from the ground

31. A HOUSE FOR WATER-LILIES WHEREIN A BUSINESS MAN MIGHT GROW THE KINDS THAT OPEN IN THE EVENING

# From Dining-Room to Tropics—By Frank H. Presby

A NEW IDEA FOR AN INDOOR GARDEN OF NIGHT-BLOOMING WATER-LILIES WITH WHICH TO SURPRISE ONE'S GUESTS AFTER DINNER

I DO not know of a more dreary place for the true plant-lover than the usual stereotyped conservatory. Palms, crotons, rubber plants, pandanus, and the like, are all very well in their way, but any one can see them in a better condition in any florist's store or greenhouse. Even when blooming plants, grown elsewhere to the flowering stage, are brought in to give color to such a conservatory, you are likely to have something more or less conventional and unimaginative. When I have a few thousand dollars to spend, I expect to build a conservatory that will be very different from any I have ever seen. My plan will be, by one step, to transport you from the Arctics to the tropics. It will open from my dining-room, but the door leading to it will be locked during dinner, with a curtain in front of the door so that no one would suspect it was there. After dinner, when the cigars have been passed, the curtain will be drawn aside and a button touched will light up the conservatory. When the door is opened and we leave the dining-room my guests will find themselves in the tropics. The walls will be covered with ferns, bunches of bamboos and papyrus will stand in the corners, and the middle of the house will be given to a large tank filled with the tender night-blooming lilies, the varieties that open soon after sunset and remain open until noon the next day. Many varieties will open and close for four or five days in succession. The water in the tank must be heated to give results, and the plants can be put in tubs.

I know what varieties to get, for I visited the leading dealer in aquatic plants when the water-lilies were in bloom and made note of the kinds I liked best.

The reds I want are Frank Trelease and Rubra rosea. Of the pinks, I like best O'Marana and George Huster; of the whites, I prefer Jubilee and Dentata. Deaniana and Kewensis, two light pink varieties, are also very good. There are no yellows.

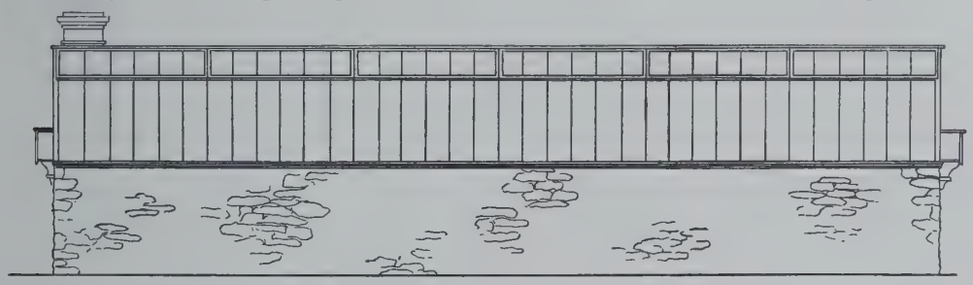
I plan a house about 50 x 20. The walls will be of brick about six feet high, with an inside lining of tuffa stone from Berea, O. This stone is rather soft when first taken out, but hardens after it has been exposed to the air a short time. The surface is very like coral and it can be found in large as well as small pieces. It will be laid up against the brick wall with cement mortar, leaving many pockets for planting with ferns. These, with the bamboos, papyrus and water-lilies, will be all the planting. I expect the ferns to "self-sow" and multiply without any care on my part. Eventually they should cover the walls with a living mass of green.

The greatest cost of running such a house will be the heating. The cost could be reduced by putting the boiler in the cellar of the house and thus do away with the chimney and boiler pit. After the ferns are planted they will flourish for many years, and the first cost of the water-lilies would not be a large item. Japanese gold-fish would thrive in such a pool. The house must be well-lighted to show the color of the flowers. I have a notion or two about a novel and effective way of lighting such a house. One of the leading firms of greenhouse architects has made the following estimate of the cost of the water-lily house erected complete for me, at Montclair, N. J.:

| | |
|---|---|
| The glass roof | $1,025 |
| The masonry | 1,800 |
| Heating plant | 575 |
| | $3,400 |

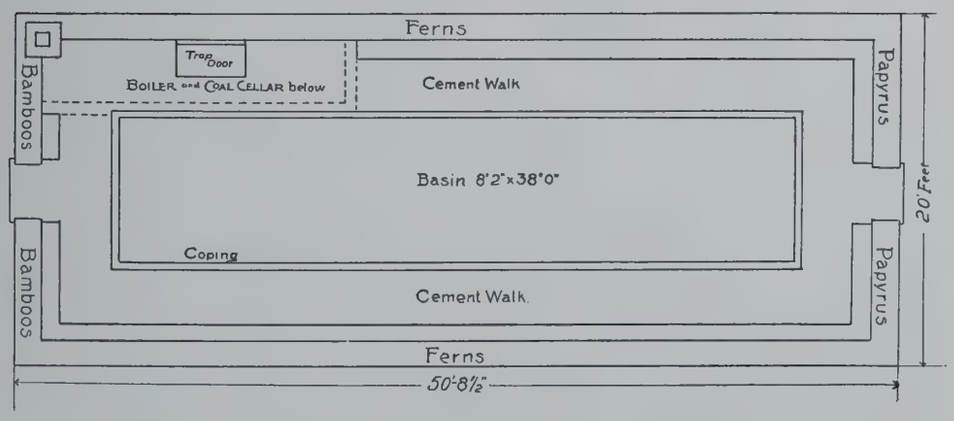
The woodwork would be clear, air-dried, red Gulf cypress. There would be two lines of roof-ventilating sash, each line operated independently. The masonry work would be of stone, bedded in concrete. The boiler-cellar would be about 18 x 4.

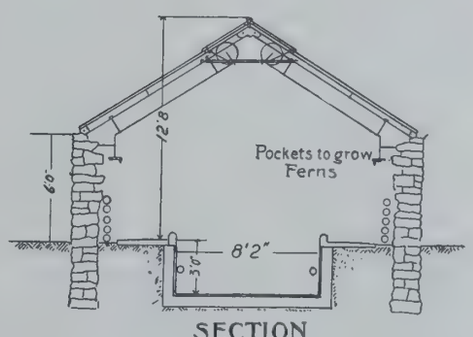
A small outdoor water-garden is just the thing to make one's place different from the general run of commonplace gardens. Why not try some hardy water-lilies this year? I have two pools in my garden, and both are a source of great pleasure to my family and myself, as well as the stranger in my gates. One is planted with water-lilies and the other with lotus. In the former we have flowers from early spring to late autumn. The colors are white, yellow and pink. The lotus blooms for a period of about two months, and I have nothing in my garden to compare with its flowers in beauty. If you are a lazy gardener, try water-lilies. They require no watering, when everything else is drying up, and no weeding at any time. They multiply so fast with me that most of them have to be dug up every spring, and the increase sells at good prices. Do not grow geraniums, cannas, coleus, and the like, when so many beautiful plants can be grown so different from your neighbors.



SIDE ELEVATION

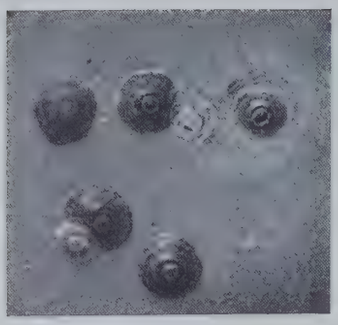
END ELEVATION



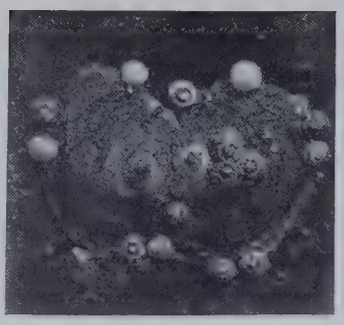




SECTION

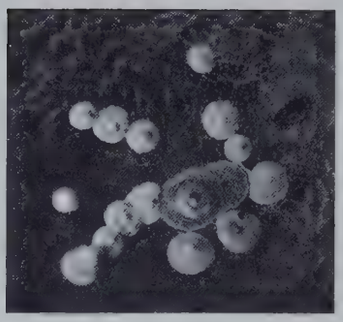
32-35. Plans of the novel greenhouse for water-lilies which can be attached to a house already built



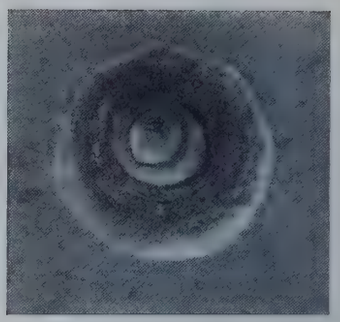
36. Several young scales in the black stage. (Much enlarged)



37. Adult female scales and young scales in the white stage. (Enlarged)



38. Male scale and young scales in the white stage. (Enlarged)



39. Adult female scale. (Greatly enlarged)

# How to Kill the San José Scale—By E. P. Felt

State Entomologist of New York

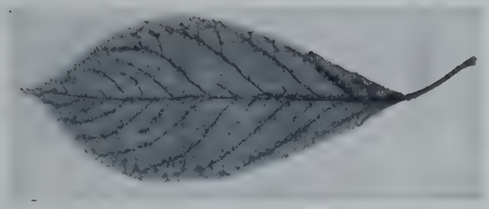
IS THE SAN JOSÉ SCALE IN YOUR NEIGHBORHOOD?—IF SO, YOU WANT TO DO SOMETHING ABOUT IT AT ONCE!—THE GREATEST INSECT PEST OF MODERN TIMES

THE San José scale (pronounced *Hozay*) is widely distributed in America, and especially in the vicinity of some of our larger cities, particularly New York. Its destructive powers are greatly increased by its small size and obscure color, which combine to render it extremely inconspicuous, and portions of trees are frequently covered by the pest or limbs killed before the owner is aware of any trouble.

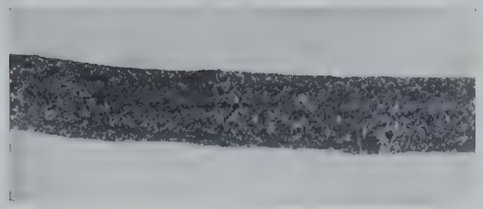
This species may be distinguished from all others by the form of the female scale, it being grayish or yellowish gray, about one-sixteenth of an inch in diameter, and with a yellowish central elevation representing a cast skin. There are several allied, nearly circular scales, with the elevation or nipple a little to one side of the centre, which somewhat resemble this species, but fortunately these very rarely occur in sufficient numbers to cause appreciable damage. Young San José scales are dark gray, sometimes almost black, with a distinct central nipple bounded by a grayish ring. Both adult and young when located upon green twigs, leaves or fruit produce a very characteristic purplish discoloration in their immediate vicinity, and for this reason the pest is easily recognized in mid-summer upon foliage and fruit, since it has a marked tendency to establish itself upon the latter, particularly apple and pear. This characteristic stain also occurs in underlying green tissues, and may be exposed by cutting the infested bark. Any abnormal, rough, scurfy appearance upon twig or branch should arouse suspicion. Sometimes this is due to abnormally developed or peculiar lenticels, and occasionally fungi produce very much the same general appearance as a bad infestation of San José scale. If living scale insects are present, the drawing of an inclined knife-blade or even one's thumb-nail over the surface will cause the exudation of a yellowish fluid from the crushed bodies of the underlying insects. There are two native species which are frequently confused with the San José scale, though both are very different. One, the apple-bark louse, has a brown, elongated, slender, pear-shaped, usually slightly curved scale about one-eighth of an inch in length. This species occurs upon many trees and shrubs, and winters in the egg. The other, the scurfy bark louse, has an irregular white or dirty white scale about one-tenth of an inch in length, which expands irregularly from a slender, yellowish tip. This, like the apple-bark louse, winters in the egg and occasionally forms a thick, dirty white incrustation.

40. Spraying a Japanese quince with a little broom

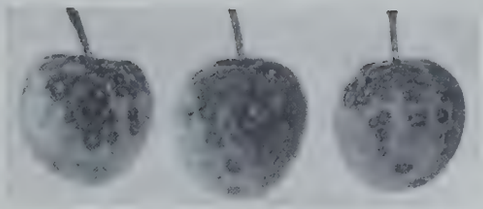
An understanding of the life-history of this insect is essential to its intelligent control, otherwise our efforts may be sadly misdirected. The winter is passed by this insect in a half-grown condition. The overwintering scales are small, black, circular objects with a central nipple and one or two grayish rings. Vital activities are nearly suspended during the winter, being resumed with the approach of warm weather, and the insect, lying beneath its sheltering scale, begins once more to drain the tree of its sap. This is accomplished by means of a long, slender proboscis composed of several thread-like setæ, which are thrust into the bark and serve as a tube through which the pest may draw its nourishment from the underlying tissues. The first outward indications of life are seen in the appearance of the winged males, slight, reddish insects with two membranous, almost veinless wings, about the middle of June in the latitude of New York. The minute, yellowish, crawling young, appearing for all the world like animated specks, escape from under the protecting shelter of the mother about this time, and for a period of approximately six weeks the females continue to produce young, each averaging about four hundred, or from nine to ten every twenty-four hours. The new-born wanders forth in search of a favorable place to establish itself, and within relatively few hours (on an average a little over twenty-seven) settles at some convenient point and works its slender, hair-like beak through the bark. If it be a female, it never moves from this spot, and soon loses legs, antennæ and eyes and becomes virtually an animated pump drawing the vital fluids from its host. The development of the protecting scale begins even before the young has selected its feeding-place, as very minute, waxy filaments which spring from all parts of the upper surface of the body, rapidly becoming thicker and slowly matting down to form the circular, white scale with a depressed ring and central elevation. These insects are then in what is known as the white stage, and in a few days the covering scale turns to a black or dark color with one or more lighter rings. The female scale insect requires about thirty days to attain maturity, and the male from twenty-four to twenty-six; thus the round of life may be completed in from thirty-three to forty days. Detailed studies made at Washington show that four entire generations are normally developed, and that under certain conditions there may be a partial fifth. The fecundity of the insect, in connection with its ability to produce a number of generations annually, results in an enormous increase, and in the vicinity of Washington it is estimated that a single individual under favorable conditions may in one season become the progenitor of over three billion. It is no wonder that many trees succumb to the fearful drain. The short period necessary to complete the life cycle, and the extended time during which each female produces



41. The scale follows the veins. (About natural size)



42. Plum twig badly infested. (About natural size)



43. Infested plums, showing reddish discoloration

young, results in almost continuous breeding from the latter part of June till into October and, under certain conditions, November and even December. The period of activity is longer in the southern than in the northern States, and the destructiveness of the insect correspondingly greater. This species has been recorded upon a large number of food plants, but is very injurious to comparatively few. The fruit-trees—peach, pear, plum, cherry and apple—are preferred in about the order named. Currant-bushes are very subject to injury, and among ornamentals none are worse affected than Japanese quince. Lilacs, snowberry, willows and some other ornamentals are also liable to serious injury.

The method of spreading is of considerable importance, particularly in places where the scale has not become established. It is conveyed long distances almost entirely upon plants. The danger of budding from infested stock is greater, since the scale has a marked tendency to gather about buds and other rough portions of the bark. Aside from this, the pest can spread only by the crawling young being carried either by birds, other insects, winds or animals. The first three can hardly be controlled. Great care should be taken during the breeding season not to allow men and teams which have been working among infested trees to go directly to uninfested ones, since the scale is easily conveyed in this manner.

This insect is difficult to control not only because it is exceedingly prolific, but largely on account of its ability to withstand the action of various insecticides, and particularly because of its extended breeding-season. It is a sucking insect, and, as stated above, draws its nourishment from underlying tissues, consequently the application of arsenical poison or any similar material which lies upon the surface of the plant and must be taken into the stomach has practically no effect. It can be controlled only by the use of some substance powerful enough to penetrate the scale and destroy the underlying insect. A large number of materials have been employed for this purpose. The nearly naked, crawling young are unprotected, and on that account easily killed. The great difficulty of attempting to check the insect in this stage is that young are produced during an extended period, and therefore the best results have been obtained by the use of materials strong enough to penetrate the sheltering scale of the adult, and such substances are so strong that they can be applied to deciduous trees only when in a dormant condition. The best results, as a rule, have been obtained by early spring applications, preferably deferring the treatment till shortly before the buds begin to open.

A wide variety of materials have been employed, prominent among which may be mentioned whale-oil soap solution, kerosene emulsion, crude petroleum and its emulsions, and the lime-sulphur washes. The whale-oil soap solution at the rate of two pounds to one gallon of water is fairly effective though costly, and in commercial orchards has quite generally given way to other materials. Both kerosene and crude petroleum, in pure and mechanical emulsions, have been employed to a considerable extent, but in most cases they likewise have been displaced by the cheaper, safer lime-sulphur washes which, as a rule, have been most successfully employed. There are many formulæ for these latter, some of which have been used for years and others developed within twelve months.

A thoroughly safe, well-tried wash may be prepared as follows: Take 20 pounds of lime and 15 pounds of flowers of sulphur; bring a few pails of water nearly to a boil in a large iron kettle; add the lime, following immediately with the sulphur; stir so as to intimately mix, and keep the combination boiling rapidly for at least thirty minutes, then remove and strain through a wire screen such as ordinary mosquito-netting, and dilute to 50 gallons with cold water. This is one of the simplest methods of making the wash, and when properly prepared and very thoroughly applied the results have been most gratifying, as a rule.

This material can be made in a similar manner by steam boiling—that is, forcing a jet of steam into a barrel containing the materials, and this method of preparation is a very convenient one for those possessing steam-engines or desirous of making large amounts of the wash. Some lime-sulphur washes do not require any boiling water, and a method developed by Professor Lowe, and subsequently used by Professor Parrott, calls for the above-mentioned quantities of lime and sulphur and about 4 to 6 pounds of caustic soda to 50 gallons of water. The lime is slaked preferably with warm water, and while the reaction is in progress the sulphur, which has previously been made into a thin paste, is added and thoroughly mixed with the slaking lime. The caustic soda is then put in and water supplied as needed, the whole being stirred thoroughly. After the chemical action has ceased, the mixture may be strained and diluted as stated above.

44. Spraying San José scale in Mr. J. H. Hale's orchard in Connecticut. Running the mixture into the pumping barrel from the supply platform

In spite of the poor results reported from applications of lime-sulphur washes during the past season in New Jersey, we feel that in most sections of the country this material is by far the best for controlling this pernicious insect. It is not only cheaper, but when thoroughly applied appears to be fully as effective as any other, and there is far less danger of injury to the trees. The kerosene limoid spray may possibly be equally valuable, but it cannot be recommended for more than experimental work till it has been further tested. The question of what apparatus to use for spraying is also important. Select a stout, preferably iron pump, with broad valve-seats, because high pressure is needed and lime-sulphur washes are extremely caustic and therefore injurious to any but well-made pumps. A power outfit is advisable wherever extensive applications must be made. Ten to twenty or thirty feet of hose and a six- to eight-foot extension nozzle may be classed with the necessities. Most essential of all is a thoroughly reliable man to hold the nozzle, because, unless the trees are very well covered with the spray mixture, poor results are likely to follow. It is advisable, before spraying, to cut the trees back as much as possible, and in sections where the scale is prevalent, low heading will doubtless become popular because of the greater ease in fighting this pest. Another important point is to spray with the wind whenever conditions permit, making the application on the other side of the trees when the wind is blowing in an opposite direction, since it is almost impossible to thoroughly spray a tree, particularly a large one, without the aid of a favorable breeze. Spraying outfits are rather expensive, and the man with a few trees will undoubtedly find it much cheaper to hire his spraying done; and in some cases, at least, co-operative neighborhood work will prove the most economical and satisfactory method of controlling this dangerous pest.

The article on "Spraying Tall Shade Trees" in the February number of *Country Life in America* shows the kind of power spraying outfits used by progressive park superintendents, describes a new way of making a living out-of-doors, and the new type of neighborhood organization to get the best spraying done for the least money.

# The Best Evergreen Trees f

## WHY WE WASTE THOUSANDS OF DOLLARS A YEAR IN PLANTING WHICH HARDY CONIFERS COME—THE IMPORTANT KINDS FROM

By HEN

THE reason why people throw away thousands of dollars a year in buying evergreens that die or become ragged is largely an historical one. The great bulk of evergreen planting that proves unsatisfactory is composed of six species, English yew, Irish juniper, Norway spruce, Scotch pine, Austrian pine, and silver fir. If you had the hardihood to say this to an audience of a thousand horticulturists, your voice would be drowned in a storm of mingled howls and cheers. Every intelligent European emigrant to this country knows those trees. They are famous in Old World literature and dear to the hearts of the people. They are cheap, fast-growing trees, and every nurseryman has them, because the people demand them and they are profitable. Moreover, every one can tell you, off hand, of cases where they have been successful. And yet, sooner or later, they and all other European conifers are bound to be more or less disappointing. If it is simply a question of beauty, there is a chance for debate, because a man usually considers that he gets his money's worth if a tree retains its beauty for twenty or twenty-five years. But if one wants evergreens for permanent comfort and privacy, those mentioned above are too short-lived. The Norway spruce, which is chiefly responsible for the popular notion (wherever it exists) that evergreens are dismal and monotonous, is likely to become ragged after twenty years, and therefore less efficient as a wind-break or screen. A more permanent tree of the same dark style of beauty is the oriental spruce. The white pine makes a more lasting wind-break than the Scotch and Austrian pines in most localities, and the white spruce is probably the best of all; while the white fir of the Rockies withstands heat and drought better than the silver fir or indeed any other fir. The English yew and Irish junipers are much tenderer than the other offenders; the Japanese yew and American juniper have the same types of beauty and are perfectly hardy.

### A DECLARATION OF INDEPENDENCE

For every European evergreen that is dear to the American people, another species of the same group can be mentioned that has the same style of beauty and is better adapted to our climate. In many cases, the two species will be so much alike that the ordinary person can hardly tell them apart. We declared our political independence of England long ago, and it is high time that we declare our horticultural independence of Europe. Until we recognize that the climates of Western Europe and Eastern North America are fundamentally unlike, we shall never make this country one great garden as England is, and meanwhile we have squandered millions of dollars on European evergreens, roses, and other plants that feel orphaned when they get a thousand miles away from the Gulf stream. The trade and social affinities of the northeastern United States are with Europe, but our climatic affinities are with northern Japan, Korea, and China; with the eastern slope of the Rockies; and with Asia Minor. Those are the regions of hardy evergreens. The chief regions of half-hardy evergreens are Europe and California and the southern slope of the Himalayas.

### TWO STRIKING EXAMPLES

The Douglas spruce is hardy only when raised from seeds gathered in the mountains of Colorado. Many people complain that this tree is tender in the Northeastern United States. This is because the tree was first discovered on the Pacific coast, whence the seeds were brought to Europe and thus got into the nurseries of the world. The regular course of horticultural trade has been for our nurserymen to get their stock of trees or plants that are native to America, not from the places where they grow wild, but from European nurserymen. It was long supposed that none of the Pacific coast trees would ever grow to any size in the East, and it was a great day for American horticulture when Parry, the botanical collector, discovered the Douglas spruce growing wild in Colorado. All the hardy specimens of Douglas spruce in cultivation are descendants of Rocky Mountain stock, and it is important to note that the stock must have been gotten from the mountains, not the valleys. This one bit of information may save a man many dollars and much disappointment.

Another instructive example is the case of the juniper. Ordinarily, the same species of evergreen does not grow on both sides of the Atlantic, but the common juniper (*Juniperus communis*) grows nearly everywhere in the north temperate and subarctic zones. In every distinct climate, however, it assumes a slightly different form. Some of these forms are the Irish, the Swedish, the alpine or Siberian, the American, the hemispherical, the pendulous, and the typical European form, which is more columnar than ours. Ordinarily, the differences between a European conifer and its American representative are the differences between two species of the same genus, and it is fair to use this fact as a rough measure of the differences in climate that have produced these results; but in the junipers, the difference is considered to be only that between varieties of the same species. The practical lesson for us is this: Instead of the Irish juniper (*Juniperus communis*, var. *Hibernica*), plant the American juniper (*J. communis*, var. *Canadensis*).

### THE TWENTY-FOUR HARDIEST EVERGREENS

| *Northwestern U. S.* | *The Far East* |
|---|---|
| White pine | Korean pine |
| Pitch-pine | Small-flowered pine |
| Red or "Norway" pine | Japanese umbrella-pine |
| White spruce | Short-bracted fir |
| Red spruce | Veitch's fir |
| Hemlock | *Picea Ajanensis* |
| American arbor-vitæ | Lace-bark pine |
| Red cedar | Japanese yew |
| American juniper (or ground cedar) | Japanese arbor-vitæ |
| *Rockies* | *Asia Minor* |
| White fir | Cilician fir |
| Engelmann's spruce | Nordmann's fir |
| Douglas spruce (tender from California) | Oriental spruce |

### SOME FAMOUS TENDER EVERGREENS

| *Europe* | *California* |
|---|---|
| English yew | Redwood |
| Irish juniper | Big tree |
| *Africa* | Monterey cypress |
| Mt. Atlas cedar | Lawson's cypress |
| *Himalayas* | Douglas spruce (hardy from Colorado) |
| Deodar | |
| *Australia* | *Chile* |
| Norfolk Island pine | Monkey-puzzle |
| *Araucaria Bidwillii* | |

### THE NINE ABSOLUTELY SURE KINDS

Seven years ago, in the last number of *Garden and Forest*, Professor Sargent finished his memorable series of papers on conifers which has ever since been considered a sort of horticultural gospel by students of evergreens. He declared that there were only twelve species of conifers that had shown themselves able to grow to a large size and preserve in cultivation here their mature beauty for a long period. These are the white, red, and pitch-pines, the white and red spruce, the red cedar, the juniper, the American arbor-vitæ, the hemlock; and three deciduous species—the European and American larch, and the ginko. Inasmuch as the last three have no more value for comfort and privacy than any other deciduous trees, they have been omitted from the list of the twenty-four hardiest evergreens given above. The rest of that list of twenty-four is composed of species which Professor Sargent said had stood the test successfully for twenty-five or fifty years, which, however, he did not consider a long enough period. The nine sure kinds are all American.

### WHY EVERGREENS DIE

Thirty below zero is not nearly so deadly to evergreens, or anything else, as alternate freezing and thawing. No man and no

# · the Northern United States

## E WRONG KINDS—THE SIX CHIEF OFFENDERS—THE REGIONS FROM ACH COUNTRY—WHEN AND HOW TO TRANSPLANT EVERGREENS

Y HICKS

plant enjoys being wakened a dozen times during the course of a nap. But these interruptions are much harder on evergreens than on deciduous plants, because the former have an immense mass of foliage to support all winter. Just as soon as the sun comes out strong, the leaves start to "transpire," *i. e.*, evaporate moisture (though less actively than in spring), and if the roots are frozen they cannot supply moisture fast enough to take the place of what the leaves give off. That is why evergreens so often look yellow and sickly in March. Wind often dries out soil or foliage faster than sunshine, and, broadly speaking, our winter winds are from the continent rather than the ocean, and, therefore, dry. The other great cause of mortality among evergreens is summer drought.

### HOW TO MAKE THEM LIVE

The bother and expense of watering trees can usually be avoided, except, of course, at planting time. The soil generally has enough moisture; the only thing to do is to prevent its escape, and that is what a mulch is for. Put six inches of coarse litter around the base of every newly planted evergreen. This prevents unnecessary evaporation from the soil. Nature does the same thing. Go into any pine grove, and you will see the forest floor carpeted with needles. These dead leaves, which the evergreens have shed, prevent the moisture from rising out of the ground, save through the trees themselves.

### WHEN TO PLANT EVERGREENS

The common notion about planting evergreens without balls of earth is that the best time to set them is in April or May, when the soil is warm enough for the roots to begin action at once and before the new growth is long enough to wilt. The bulk of the planting is done then. A second season for planting evergreens is in August or September, so that the roots may become established before winter. But if an evergreen has a large ball of earth, full of feeding roots, and is carefully wrapped with burlap or something to protect the fine roots from the air, it can be moved any month in the year. This may or may not be more expensive, and the larger a tree, the more important it is that it be "root-pruned" before being taken up. To "root-prune" a tree ten to thirty feet high, draw a circle three to ten feet in diameter around it, dig out the earth to the width of two spades, cutting off and bending around the roots, cut partly under and cut the tap-root if the tree has one, fill the trench again, and leave the tree for a growing season, or until it has been accustomed to the new conditions and filled the ball of earth with fine new roots.

### TRANSPLANTING NATIVE EVERGREENS

When you dig an evergreen in the woods or preferably in the open, to take home, try to get as large a ball as you can possibly carry. Use a long nursery spade and dig in a circle with the edge, not the front, toward the tree. Do not try to cut under until you have a good, deep trench all dug. If you catch hold of the tree and jerk it over, you will split the roots. The larger root-ends should be trimmed off smooth. Wrap the ball tightly with burlap. It is far more important that the roots of evergreens should be protected from the air than those of deciduous trees, because the resin of conifers dries after a few hours' exposure to the air, and does not readily circulate again.

### MOISTURE-LOVERS AND DROUGHT-RESISTERS

In general, there are two types of roots among evergreens—the swamp type and the upland type. The arbor-vitæ is easy to transplant, because it grows where its roots have plenty of moisture, so that they do not travel far or deep, but make a compact ball of feeding-roots near the trunk. A pitchpine on a gravelly hilltop has to send its roots wide and deep to get moisture, and anything that makes a few large, thick roots is hard to transplant successfully. All the evergreens that the nurserymen sell in great quantities are fast-growing trees with the swamp type of roots, and Holland has the ideal moisture and labor conditions for growing young evergreens from seed and cuttings by the million. Unfortunately, many of these kinds are short-lived. For the most permanent features of an American landscape, we must look toward slower-growing species which generally have a deeper and wider-reaching root system. Every time I go to New York I see suburbanites buying Holland-grown evergreens of species that are sure to get ragged in a dozen years or die. They look so pretty in the auction rooms and by the ferries that it is impossible to resist them, and a man who never bought a tree before will buy an evergreen without knowing its name or caring. Lawson's cypress (*Chamæcyparis Lawsoniana*) must have been created to make all these people happy. It is a fast-growing, Pacific-coast species which the European nurserymen dote on. It has made over sixty varieties for them, including many variegated sorts, and is grown by the million in the Netherlands, where labor is cheap. These cypresses may last a few years on the surburban lawn, or a winter in tubs or hotel window-boxes, but they have not forgotten the land they came from. On the Pacific coast, the Japanese current warmed their ancestors; in Holland, they felt the influence of the Gulf Stream. After a few experiences with a New England winter, they generally give up the ghost. It pays to know what you are buying.

### HOW TO HAVE WHAT YOU WANT

But life would be a poor thing if we never took a chance, and it would be a cruel and sordid thing to look at evergreens only from a utilitarian standpoint. Some conifers are so beautiful—the retinosporas, for instance—that we are bound to have them anyhow, whether they last five years or fifty; and some of us can stand it even if a tree does get somewhat ragged. The important and cheerful fact is that if a man has a good wind-break, he can grow to perfection almost anything within reason, and a good many things he could not reasonably expect. Perhaps the most beautiful and convincing proof of this that has ever been offered the American public is the case of the superb collection of evergreens at Dosoris, Long Island, which was begun by the late Charles A. Dana, editor of the New York *Sun*. In the February number of *Country Life in America* there are pictured seven famous trees of warmer climes, including the big tree of California and the cedar of Lebanon, which are growing at Dosoris behind a wind-break, without any other protection. To my mind, this is the strongest argument of all for having a windbreak, for a home that is merely comfortable is not much of a home, after all. We want beautiful homes, too.

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| Fir, Cilician | *Abies Cilicica* |
| Fir, Nordmann's | *Abies Nordmanniana* |
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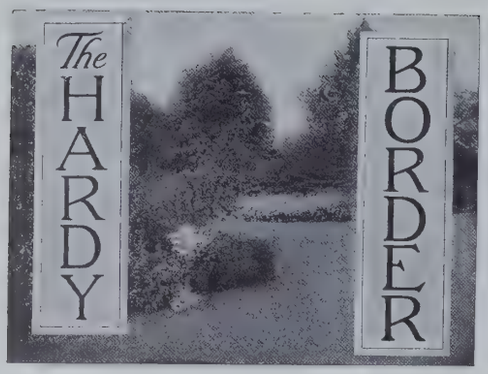



## Why Hardy Plants Die in Winter, and How to Save Them

A CONTINUOUS blanket of snow that comes early and remains in its original state until the fickleness of spring is past is the ideal winter protection for so-called hardy perennials. Should a February's sun melt it into slush, and a subsequent cold spell convert the slush into ice, many plants, as well as the grass on low spots on the lawn, suffer. In some sections of Maine, Vermont and the Canadas the ideal protection generally exists, and the sweet William, Gaillardias, double-flowering sunflower, the cushion pink (*Armeria maritima*), and shallow-rooted plants like the cardinal flower (*Lobelia cardinalis*) come out of the winter in excellent condition, whereas in less favored situations, such as skirt the southwestern shores of Lake Michigan, they would perish unless artificially protected. Near Chicago the snow seldom remains over a month's time, and in some winters the opportunity for a single sleighride is a rare treat.

Toward spring is the critical time when the most damage is likely to occur from alternate freezing and thawing. If the effect of the sun's rays is excluded the danger is lessened. This applies not only to herbaceous perennials, but also to the wood of climbing roses and the flowering buds of Forsythias, *Prunus triloba*, and the rose-flowered Japanese weeping cherry. Some plants will perish in wet, heavy soils that would winter safely in the same climate if in light, well-drained sod.

In our hardy borders we have plants from all corners of the earth, many coming from sections where conditions of soil and climate are at variance with those of their new home. Examples of such plants requiring special treatment are the rare and beautiful *Stokesia cyanea*, from the sandy pine woods of Georgia, which, while hardy as far north as Boston in congenial situations, is not so with me in our clay loam, unless moisture in winter is kept away from the roots. I carry it safely by placing a hotbed frame over the group, filling it with dry oak leaves and covering with a sash or board shutter. The cardinal flower (*Lobelia cardinalis*) is treated in the same way. While this plant is native, and winters safely in the damp but heavily grassed prairie, where the network of roots of the surrounding grasses holds down those of the cardinal flower, it is very likely to be lifted out of the soil in an open bed. Inverted sods laid over them often bring them through safely.

An open,wet winter often kills the Gaillardia —a native of Texas—but by planting in a well-drained soil, covering with strawy manure or dry leaves, and placing over them a waterproof wooden shutter so slanted as to shed water from the bed, I bring them through in good condition. Often when the crowns appear injured they will break out from the roots and form new plants. It pays to have patience with plants of doubtful hardiness, instead of discarding them if they look weak or ragged. Have a reserve garden for such things and for every plant until you have lived with it a year and know its color, season, and good and bad points. Then you can place it where it will appear to the best advantage.

Don't be in a hurry to cover. A good frost, or even a hard freeze, will not injure them. Let your neighbor cover first, so the field mice, seeking cozy winter quarters, may nest in his coverings, and nibble at his bulbous plants instead of yours. The last of November or even later is early enough.

In the meantime, if possible, gather up the fallen leaves in the woods, preferably oak, and store them under cover. Cut down the eulalias, and eventually use them in place of straw in protecting climbing roses and tender shrubs, or even spreading them over the strawberries. Save them in the spring and store them for another season. It pays to grow some in the kitchen-garden for covering purposes alone, and it is cheaper than buying straw.

If you grow the pennisetum as a border to a canna bed or for decorative purposes, pull them up, roots and all, and use them over any group of early blooming bulbs. They afford good protection, and leave the bed free from litter when removed.

Cut to within a foot of the ground the vines of *Clematis paniculata* or any of the small-flowered forms of clematis to use in protecting climbing roses, laid-down grape-vines and raspberry canes, or to place over a bed of any perennial possessing an evergreen foliage like the perennial poppy.

Cut close to the base all perennials that naturally die back, saving the stiff woody tops, such as the asters, for use over evergreen foliage. Spread short half-rotted manure all over the bed, working it well up to the necks of those retaining their foliage.

Cut, in September, or before the foliage matures, so it will be retained all winter, short boughs of oaks or evergreens and insert the butts between plants of moss-pink (*Phlox subulata*), hardy pinks, or any low-growing evergreen plant. This keeps the sun off, catches the drifting leaves, and affords a light, well-ventilated protection.

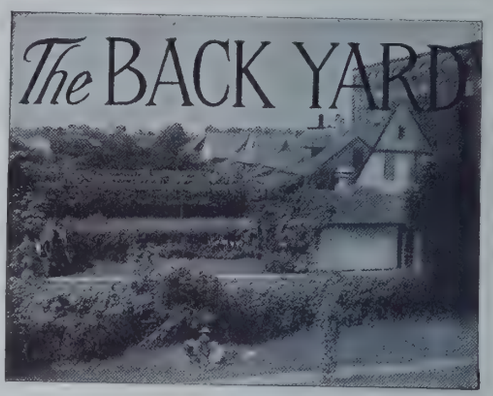
Cover early-blooming bulb-beds with eulalias, pennisetum, long straw or hay—or strawy manure with the droppings shaken out. The ground being frozen all winter and up to the time of removal, no manurial leaching may be expected, and this covering comes off with but little litter to remove from among the peeping, brittle points of growth.

For narrow borders of any low-growing evergreen plants or for the fall-produced tips of the Spanish iris, and even for newly planted rows of strawberries, inverted V-shaped troughs placed over them is ample protection.

When spring comes, remove the rougher material and fork in the finer, but in large beds of phlox or any thick-foliage plant, push back out of sight, instead of forking in. It will act as a mulch and help retain the moisture.

If you failed to mulch your border and strawberry bed, do so now. February is a month of alternate freezing and thawing.

Highland Park, Ill. W. C. EGAN.




## The Problem of the Wooden Fence

A HIGH board fence is an eyesore, yet many people are unwilling to cover it with vines, because sooner or later these will cause the wood to decay. The thing to do is to put up chicken wire in front of the fence and grow the vines on the wire.

We bought some strips a few years ago, an inch thick, two or three inches wide, and thirteen feet long, for five cents each; also some two-inch mesh wire netting one or two feet wide at three-quarters of a cent a square foot. Nail the strips to the fence perpendicularly, about six feet apart. To these tack the wire horizontally, leaving six-inch intervals between the widths of wire. The space between the fence and the wire provided by the strips is to allow for the twining of the vines and to give a little air space around the leaves. The intervals between the widths of wire are partly for economy, as the vines will reach from one to the other, making a solid mass of wire unnecessary, and partly for convenience in handling and training, which is difficult to do on an unbroken stretch of wire.

Foliage vines, except English ivy, are good for this purpose. Virginia creeper and ampelopsis are two of the best of these. Vines with abundant foliage make a good background for cosmos, hollyhocks, single dahlias, and other flowers that require support. These can be tied to the wire as they grow, or else flowering annual vines can be planted each year—cypress vine, morning-glory, climbing nasturtiums, or sweet peas for beauty. For use and as a curiosity plant some mixed gourd seeds. Ten cents' worth will provide as many dollars' worth of surprise and entertainment. H. B.

## How to Buy Fertilizers

THE simplest and easiest way for any one to solve the fertilizer problem from the gardening point of view is to buy a bag of ready-mixed fertilizers, and thousands of people do this every year. It is not, however, the intelligent nor the economical way. Economy, however, does not cut as much of a figure in the small home garden as in farm operations or in professional fruit and vegetable gardening. We spend more than fifty million dollars a year on fertilizers, but at a rough guess it is doubtful whether the fertilizers bought for home and garden use would amount to more than a million or two.

If I had only five dollars to spend on my garden this year, I think I should put four of it into fertilizers and one into seeds and plants. The reason why the general run of gardens in this country have only ordinary success is that a person commonly thinks first of the plants that he wants to eat, while the needs of the soil come afterward. Year after year I make the same old mistake of buying a great variety of seeds, most of which are forgotten in the spring rush, or if I get the rare things planted the chances are that they never survive, or drag out a miserable existence. Every single plant in a garden ought to be a success, and the only way to have a successful garden is to have the soil rich. There is a great deal more satisfaction in having a few sturdy plants that are simply bursting with health and vigor than half-starved specimens of rarities and novelties. Any one who reads this magazine ought not to be satisfied with a garden that is simply "good enough." It ought to be a very good garden, and the only way to have a very good garden is to enrich the soil by fertilizers or manures.

While the people will go on buying ready-made fertilizers till the crack of doom, the man who enjoys putting intelligence into his hobbies will find the fertilizer problem a fascinating one. No subject under heaven is more complicated or has more uncertain factors. But these obstacles only add zest to one's enjoyment if one goes at the matter in the right spirit. When Liebig, about 1841, discovered the nine elements of plant food, people jumped to the conclusion that the only thing we should have to do would be to analyze the plant and find out its chemical constitution. This has been done a million times, but the chemical constituents of a plant will never be an absolutely safe guide as to its needs, for a plant often takes up more of a given element than is good for it. The next great hope of humanity that was dashed was the assumption that a chemical analysis of the soil would give an infallible guide for determining what kind of fertilizer to use and how much. The reasons why soil analysis alone can never be a perfect guide are numerous. Neither method alone is entirely reliable, but both, when taken together, furnish valuable hints.

While there are nine elements of plant food, and perhaps more, there are only three of them that are of practical importance to the planter. These are nitrogen, phosphoric acid and potash. These are the elements that are usually deficient whenever crops fail, and they are the costly elements to replace. To these should be added lime, which is also a plant food, but which, so far as its food value is concerned, is nearly always present in sufficient quantities. The great function of lime is to make the soil comfortable for the bacteria that supply nitrogen to the soil. Lime sweetens sour land, and often improves the condition of the soil that is not sour. It is therefore called an "amendment" rather than a food.

The only intelligent way to buy fertilizers is to find out what nitrogen, phosphoric acid, potash and lime are for, what forms they can be purchased in, and the relative value of these for general and special purposes. It is commonly said that nitrogen makes growth, phosphoric acid flowers, and potash fruit. This is going a little too far, because phosphoric acid and potash work together for the formation of flowers and fruit, and the experiment station people are not willing to say that their functions are differentiated in the manner stated above. But there is no question what leafy crops need. All such crops as lettuce and cabbage, of which we eat the leafy parts and not the flowers or seeds, require plenty of nitrogen.

This department will discuss how to buy nitrogen; how to buy phosphoric acid; how to buy potash; lime, when and how to use it; what special crops need; what different kinds of soil need; low-grade versus high-grade fertilizers; barnyard manure; cover crops; and in general the whole subject of making the garden rich and productive. The aim will be to simplify the whole subject as much as possible, and the point of view will be entirely that of the home, fruit, vegetable and flower garden. In my library there must be five or six hundred bulletins on fertilizers, but of course they deal almost entirely with the problems of the professional farmer and horticulturist, and the scale of operations is large. Hidden away in this discouraging mass there are a few pamphlets that will be of genuine help to the gardener. It will pay every one who has a garden to ask the United States Department of Agriculture for printed matter on this subject, and also to write to his State experiment station, specifying exactly what he wants. There is no time like the winter to study the fertilizer question, nor is there any other subject which we can so profitably study. The way to have a better garden next year is to enrich the soil as much as possible.

Articles in this department will be written by unbiased specialists. The fertilizer business is on about the same intellectual and moral plane as patent medicines. This department is in full sympathy with the experiment stations.

### PRACTICAL HINTS FOR FEBRUARY

See what you can do about getting manure for the garden. The value of manure depends almost entirely upon the way it is handled. If you have plenty of barnyard manure, haul it out every day to the garden, if it is practicable, and put it on the snow. The worst thing you can possibly do is to leave it exposed to the rain and never turn it over, because it heats quickly and most of the nitrogen goes away. Whenever you smell ammonia, nitrogen is being wasted. Keep the manure under cover and fork it over every three or four days, or else haul it out every day and put it where you want it to do the most good. Now is the time to manure the lawn or sprinkle bonemeal on the snow.

WILHELM MILLER.

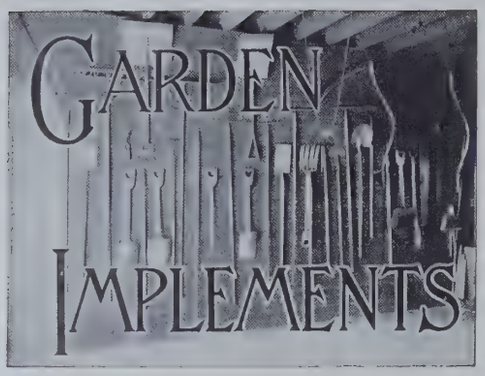
## Greenhouses Costing $100 to $350

THE little greenhouse pictured in the department heading is the property of Mr. E. T. Harvey, of Bond Hill, Ohio. Although Mr. Harvey goes to Cincinnati daily, he manages to care for his greenhouse in a half-hour each morning. The house is 34 feet long and varies in width from 8 to 12 feet. Such a greenhouse can be built for $350. The owner adds still further to its usefulness by using it as a background, around which he has laid out a flower border 2½ feet wide. In the spring this border is filled with Dutch bulbs, and in the summer with greenhouse plants.

A remarkable feature of this small greenhouse is the number of large plants it contains, such as large palms, a *Pittosporum Tobira* measuring more than 5 feet across, loquat, orange and lemon trees bearing fruit, araucarias, azaleas, camellias.

These are moved into the open garden in the summer-time. Three large climbers stay in the house all the year round, a night-blooming cereus, some climbing roses, and a *Monstera deliciosa*.

A greenhouse costing $100 has been built by a resident of Ottawa for use in an entirely different way. His object was simply to raise flowers and vegetables for setting out in his garden, and to protect a few flowering plants in the fall and spring. It is a "lean-to" 15 feet wide and 20 feet long.




## Gardening Without Backache

THE wheel-hoe is the most important garden tool invented within a century; at least, one gardener thinks so—a busy housekeeper, who has undertaken the entire care of the garden as a means of health and pleasure. What can it do? Almost everything that hands, hoes and rakes can accomplish, and does it better and faster. My wheel-hoe has one small wheel and four kinds of attachments—rakes, scrapers, cultivators, and plow. There are more elaborate ones with drill attachments and large wheels—some with two wheels. They cost from $2.25 to $10. This may sound like a high price, but ours has long since paid for itself several times over, because it is such a saver of time and strength, and does its work so well.

The small-wheel kinds are best adapted for soil that is in fairly good condition, but the large wheel is better for rough land, because it rides over obstructions more easily.

The wheels make it possible to push the tool in a series of jerks—drawing it back every few feet for a fresh start; this will not be found necessary in light, loose soil, or for shallow cultivation.

The most expensive attachment is the drill, and this is invaluable to the market-gardener and to the country gentleman, or to any one who has a large garden, especially if the rows are long and only one kind of plant is grown in a row. In the small home garden, however, where many kinds are grown, and in short rows, the expense of a drill may be saved.

The scrapers are excellent for nipping off a fresh crop of young weeds, keeping the paths clean, or for shallow cultivation, but in our experience the plow has been the most useful of all the attachments, though we have nothing against the others; they are useful and satisfactory, but the plow prepares the trenches for all but the shallow-planted seed, covers the seed after it is planted, does all the close cultivating and a good part of the general cultivating between rows, and last, but not least, it is in constant use as an edger for the beds and vegetable rows; more than one washout has been prevented in our garden by keeping the crops ridged up by the indispensable wheel-hoe.

My ancient and orthodox hoes stand rusting in a corner of the barn. Even the push-hoe, once a prime favorite, and the ever-useful rake, are taking a rest, for the wheel-hoe replaces them all, and, besides that, does work which they never pretended or attempted to do. My memory is still sore with thoughts of the bone-racking motion of the primeval hoe and the see-saw of the old-time rake.

Think of the difference between that and taking a stroll between your rows of vegetables, pushing that light-built, easy-running gem of a tool—the wheel-hoe! The only time mine has been really hard to work was when I tried to plow too deep, or run it up-hill or turn tough soil; although this work was hard to do, it would have been impossible with any other hand-tool.

IDA M. ANGELL.

## Flowering Trees and Shrubs

EIGHT SHOWY KINDS THAT CAN BE TRANSPLANTED FROM THE WILD IN FEBRUARY

FEBRUARY is an excellent month for transplanting flowering trees and shrubs from the wild into home grounds, especially if the January thaw has bared the ground and the air thrills with the promise of spring. The trees are dormant, their roots packed tight in frozen earth. It is harder digging, but you get a better ball of roots.

Certain flowering trees among our native species are as beautiful as any exotics obtainable from a nurseryman. In fact, all the best ones are sold by nurserymen. Where these trees are common there can be no objection to digging them up to take home. And these trees are always dearer to the family than trees purchased from a full purse by proxy.

I suggest eight native trees for transplanting to the home grounds this month. Go to the woods and locate a full-grown tree. Bark, shape, hanging seeds, leaves on the ground, or the situation of a tree may enable you to recognize it in winter. The winter bud is the best means of identification. Next best is the arrangement of buds, whether opposite or alternate. A twig from the old tree will enable you to find saplings of the same species. The buds are exactly alike. First comes the problem of selection. The younger a tree is the safer is its transplanting. Choose shapely young specimens that grow in open spaces. Their roots are not entangled with those of older trees. They have had sun and air. Their buds are large. They will make a quick, vigorous start, for their twigs are stored with food. Their bark is thicker; they are hardier than saplings in crowded places. Tap-rooted trees are hard to dig and hard to move. Fibrous-rooted ones are easier, for they are shallower and have a close grip on the soil. Trees growing in clay loam are more successfully transplanted than those in sandy soil, for clay sticks and sand falls away. The second problem is to dig a sapling so as to save the highest percentage of its fibrous roots and to keep these from exposure to the air. In February, careful digging will usually turn out a solid ball of earth. This may be wrapped in a gunnysack to hold it together on the home trip.

The last problem is to set out the tree in the hole previously dug to receive it. It should be solidly packed with soil all around and under the ball of earth. It should have its old level—no lower, no higher. The top must be pruned to offset the loss of roots. No watering is necessary.

In short, the philosophy of successful transplanting of deciduous trees is that the small feeding roots should be kept in ignorance of the change that is going on.

Every garden needs a flowering dogwood, with its snow of white blossoms in spring. It should be planted in the border of an open lawn, but overtopped behind by large trees, because it has no foliage of its own at flowering time to make a background for the blossoms. The price of such a beautiful tree is careful transplanting and patience with its slow growth.

The tulip tree is another particular tree. Its roots are fleshy and easily injured. To get a young sapling home without bruising the roots and unduly jarring the earth ball requires patience and intelligence.

The hobble-bush, or wayfaring tree of America, bears white blossoms in spring in a flat cluster, the outer flowers of which are large and showy, like the snowball's. The shrubby viburnum loops down its slender stems and strikes root at the joints. One of these offsets will grow well and brighten with its scarlet berries a moist and shaded corner of the garden.

The pink-flowered crab-apple is beautiful in bloom, and its fragrance is spicy and delicate. The native hawthorns should have at least one representative in every garden for its white blossoms, abundant showy fruit, and picturesque, angular, and thorn-set branches. The shad-bush, or Juneberry, will as readily light up your yard with its cloud of early white bloom as it does the awakening roadside. The crab-apples, hawthorns, and Juneberries may be successfully transplanted from the wild into ordinary garden loam without taking extra care.

The tree "pussy" grows on a bog willow (*Salix discolor*). Cut twigs this month and keep them in water. By the time you are ready to discard them as bouquets the twigs will be well rooted, and by setting them in moist soil you will soon have pussy willow trees.

The witch-hazel is the last in the yearly procession of flowering trees. It blooms in October and ripens its last-year's seeds at the same time. The yellow flowers are delicately fragrant, and, though small, make a fair show because of their abundance. The explosive pods furnish much amusement.

JULIA E. ROGERS.

## The Famous Georgia Collards

THE collard is the best hot-climate plant of the cabbage family for greens. This is a good thing to know, for the cabbage is essentially a cold-climate vegetable, and few of its forms will do their best in hot weather. The collard does this at the expense of forming a compact, self-blanching "head." Instead of having a broad, well-rounded leaf, like a cabbage, it has a narrow, deeply lobed leaf, and these leaves are arranged in a characteristic rosette. The tender young leaves below the top are cut off and eaten, and the plant grows up to a height of two or three feet, forming new rosettes above while being robbed of its leaves below. Collards are to the South what kale is to the North.

There are two varieties—the European and the Georgian. The European is called rosette colewort, green rosette colewort, or simply collard, and, although capable of forming a head, it is generally cut for greens. Unlike the Georgia collard, it grows only eight or ten inches high. The leaves are crimped, rounded, and deeply hollowed or spoon-shaped. If sown in early spring the crop is ready in August, and if left later the plants make heads, but there is not much point in doing this, as cabbages make better heads. Consequently, the thing to do in Europe is to sow the seeds in early summer, in order to have greens in late autumn, when greens are scarce.

It would be interesting to know when and where the Georgia collard originated, who developed it, and how. As far south as the orange belt it is customary to sow seeds in February or March, so that the crop will be ready before drought sets in. In the middle South, where collards are most popular, they are often started in July or August for autumn greens. When the young plants are transplanted to their final positions they should stand about three feet apart, in rows three and a half to four feet distant. The cultivation is the same as for cabbage.

Professor Bailey says that young cabbage plants are sometimes eaten as greens under the name of collards, and that cabbage seeds are sown for this specific purpose.

It is not likely that collards will become popular in the North, as kale is common and cheap and better adapted to a cold climate.

H. R. C.

## The Cultivation of Collards

THE collard, to the rank and file of Georgia Crackers, is what the potato is to the Irishman, and a dish of collard greens is a *sine qua non* of the dinner of the farm laborer, black or white. The collard is an accommodating vegetable, and will grow and thrive under conditions which would cause any self-respecting cabbage to hang its head and wither of disgust. In the gardens it is planted in the early spring, and in a little while the first greens may be had by thinning in the rows. Then begins the process known as "cropping"—*i. e.*, the gathering of the under leaves, and from then on indefinitely "cropped greens" are a daily food. The more the collard is cropped the taller grows its stem, and it is nothing unusual to see straggling rows of stems some four feet high, crowned at the top with a rosette of dark-green leaves, and with brave little sprouts putting out up its entire length where the leaves have been taken off for cooking. They live all through the summer, grow delightfully tender and juicy under Jack Frost's attentions, and then in February go to seed along with those which have been sown in the fall for the special purpose of making seed for sale to the dealers.

As a side crop collard seed is profitable, though, of course, the market for the output is limited. The preparation of the soil for collards does not conflict with any other plantation work. The five-acre field which the picture shows in bloom was sown in oats in February of 1903 and made a good crop which was cut in May. The ground was then broken, broadcasted, and sown thickly in peas in three-foot drills. The pea-vines were cut about the middle of September and gave a fine yield of hay. The field was then broadcasted again, laid off in four-foot rows, heavily fertilized, and then set with the collard plants which had been grown from seed planted in a garden spot some six weeks before, the time from the cutting of the pea-vines to the transplanting of the collards being only about six weeks. Their cultivations consisted of two plowings at intervals through the fall and winter, and the seed will be ready for gathering by the latter part of May, when cotton will then be planted after them, thus making four crops in less than two years on one plot of land.

The first Georgia-grown collard seed, some thirty years ago, sold to northern dealers for fifty cents a pound. This, when from two to five hundred pounds were gathered from an acre of ground, was a brilliant investment from that astute man—a transplanted Yankee—who inaugurated the industry. There are a great many now who grow the seed, and the price ranges about twenty cents, but there is a good profit even in that.

Cairo, Ga. MRS. HENRY WIGHT.

## The Southern Gardener's Reminder

PLANT raspberries, strawberries, blackberries, pears, and apples

Plant sweet peas—the earlier they can start the better they will be.

Vegetables which may be planted in the latitude of Richmond. Sow in hotbeds: cabbage, cauliflower, beets, lettuce, onions, radishes, egg-plant, peppers, and tomatoes.

In open ground, last of month, beets, carrots, celery, kale, parsley, radishes, onion sets, horse-radishes, and hardy lettuce plants.

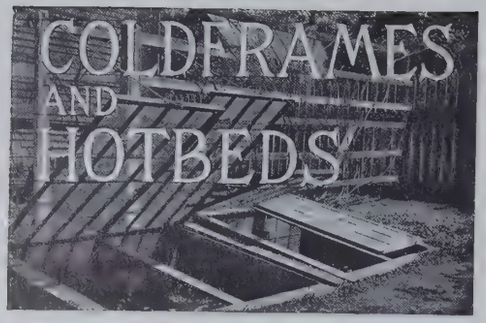
Latitude of Atlanta. Sow in hotbeds: egg-plants and peppers.

In coldframes: cabbage, broccoli, cauliflower, endive, Kohlrabi, lettuce, celery, parsley, and cress.

Outdoors: early potatoes, early English peas, carrots, beets, leeks, mustard, early radishes, and turnips. Set out cabbage plants started in November.

45. A mammy "crappin' greens." Collards in flower

46. Gathering collard seeds




## What Coldframes Are Good For and How to Make Them

EVERY well-regulated family ought to have at least one coldframe and one hotbed. A coldframe differs from a hotbed in having no fermenting manure to supply heat, and in being used chiefly for protecting, over the winter, plants that could not live outdoors, such as tea-roses, while a hotbed is used chiefly to get fresh vegetables a month or more earlier in the spring. Both are cheaper than greenhouses, and both have other uses than those mentioned above.

For instance, coldframes can be used to lengthen the season of fresh vegetables both in fall and spring, though, as a general thing, they cannot be expected to yield a sufficient variety and quantity all winter as hotbeds can, because the temperature in a coldframe during the winter is too low to encourage growth. However, it is quite possible to have fresh spinach from coldframes all winter if it is started early enough to be in its prime by November. So grown, it attains a quality superior to any grown outdoors. Lettuce and radishes also can be had from coldframes throughout the winter, though, naturally, the product is better and more abundant in the months that have more hours of sunshine than December and January. The coldframe also fulfils the same function as the hotbed in starting vegetables in early spring that are to be transplanted to the open ground as soon as the danger of frost is past, though a coldframe will ordinarily enable one to get fresh vegetables in this way only a fortnight earlier, while a hotbed would gain a full month. Moreover, coldframes furnish the best way of growing violets, pansies, English daisies, and the polyanthus primrose, all of which would usually survive the northern winters out of doors and bloom in May. In coldframes, they will bloom for a month or more any time from February to April. Again, foxgloves and larkspurs, though quite hardy and easy to grow from seed sown outdoors in spring, produce far better results if started in September, kept over winter in coldframes, and planted outdoors in spring. There are a great many choice plants that are not quite hardy and do not need to grow at all during winter, but do require some light or they will become weak and spindling. The coldframe is better for storing such plants than the cellar. When a coldframe is made deep enough to store rhododendrons, azaleas, star jessamines, and other plants, three or four feet high, it is called a pit.

A coldframe may cost anywhere from nothing to fifteen dollars. If one does not care about looks, a loosely thrown together framework, such as is used in the field and removed, leaving the plants to mature where they started, will be found useful for some things, but the best thing is to have a permanent structure which is stoned, bricked, and painted. One that will answer every purpose is nothing more than a topless and bottomless box with a slope of a few inches to the front, which must face the south or southeast. Set it where there will be a fence or building to protect from north winds. Fit the top with a sash which can be lifted for airing and watering; see that the soil is rich and mellow enough for a garden bed; bank up the outside, and you will be ready to sow the seeds of joy for yourself and of envy for your neighbors.

If you do not wish to attempt anything more elaborate than the starting of a few vegetables and flowers in the spring for extra early bearing, you need not bother with the sash, but in its place use a piece of cloth—any material that will keep out cold—fastened to a framework made of inch-thick strips of common pine.

Strictly speaking, a coldframe is a structure accommodating four sashes each 3 x 6 feet, the cost being about $15. They can be bought ready-made and shipped any distance.

If your frame is to be used simply for wintering dormant plants, start your seeds in the summer or fall, long enough ahead for the plants to become fair sized before transplanting to the frame. In the latitude of New York, the middle of September is early enough for cabbage and lettuce, as any earlier sowing tends to make them go to seed. By about November 1st, your seedlings should be ready for the frame, but do not cover them with sashes until there is danger of freezing, and even then the sashes need not be used in the daytime if there is bright sunshine. In fact, the raising of the sash two or three inches for ventilation during the day keeps the plants from becoming too tender. As the weather becomes colder—10° or less above zero—the glass must be covered at night with carpet, boards, straw, or other protective material. If the plants have become frozen in the frames, this extra protection may be left day and night in case of two or three days of severe cold. You may apply the same principle to the removal of snow—if the plants are not frozen. When snow falls, it must be cleared off, for if left a number of days the plants will become tender.

If the temperature inside the frame is from 25° to 32°, the plants will remain dormant. Transplant to open ground when spring is settled.

But, if you prefer to use your frame for starting extra early spring-sown plants, to gain two weeks in the outdoor season, plant your seed four weeks ahead of outdoor planting. Radishes, parsley, beets, and similar vegetables must be planted about March 1st in the neighborhood of New York, and set in the open ground about April 15th or May 1st. A 3 x 6 sash will accommodate about 400 lettuce plants, which should stand about two by three inches apart until transplanted outdoors.

If you have to be very economical, build some extra frames without sashes and fill them during the winter with leaves or straw to keep the ground unfrozen. On March 1st, set in some of the lettuce plants—fifty to a sash. Transfer the glass from any frame which no longer needs it. Allow the plants air and rain in generous quantities and you will have lettuce two weeks ahead of the outdoor season. When your lettuce comes out in May, plant a half-dozen cucumber seeds in each sash. Keep the glass on at night until the middle of June, when the finished article will be ready to reflect credit on your table.

Don't forget to provide yourself with small shallow boxes for all seedlings; you will find them more convenient and easier to handle than if raised directly in the frame.

When properly treated, plants which are wintered in coldframes will become so hardened that they will stand setting out in the spring long before the seedlings from spring-sown seed. Cabbage, cauliflower, and lettuce are almost hardy anyhow, and several degrees of frost do not hurt them.

For these vegetables, coldframes are much less trouble than hotbeds, and very little later if closed at night and covered with mats.

IDA M. ANGELL.

## A New Reason Why Roses Should Be Ordered Early

TEN years ago everybody used to order roses in May; now, to get the best stock, they send in their orders in February or even as early as January, stating the date they wish to have them delivered. An immense new business has started up in the last few years, called the "advance order" or "reserve order" business. The up-to-date nurseryman now has an "advance-order house" in which he places the plants for future delivery as soon as they are ordered. Each lot has attached to it a conspicuous card, stating whom the plants are for and when they are to go. This is a vast improvement on the old-fashioned method of ordering at the last minute, and as a result receiving the tag ends of the stock, or, worse yet, getting an inferior or different variety because the supply has run out.

The March number of *Country Life in America* will contain an elaborate ten-page article on "How to Grow Roses."

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Your garden will not be complete without some of the above. Let us tell you about Japanese Gardens. Our Japanese landscape expert will be glad to give you the requisite information for making one of these unique gardens. Sketches and estimates furnished.

HINODE FLORIST CO., WHITESTONE, LONG ISLAND, N. Y.
——TELEPHONE CONNECTION——

## Cheap Spraying Outfits for Home Gardens

IT is impossible to have first-class vegetables and fruit without spraying. Most people are afraid of the subject, because they think they must learn all about the insects and a lot of hard Latin names.

The main things to know are these: (1) the chief enemies; (2) whether they are chewing or sucking insects; (3) when they are most defenseless. With the exception of those species that feed below the ground or are concealed in the plant tissues, insects are nearly all fairly easy to attack. They belong to two general classes: (1) those that suck the juices through their tubelike beaks, which are generally held close to the lower side of the abdomen, and (2) those that bite off little pieces with movable jaws. Squash bugs and plant lice are examples of the former; grasshoppers and caterpillars, of the latter.

For the former, entomologists recommend solutions, dusts, oils, etc., which suffocate these creatures by stopping up their breathing-holes (which are always in the sides of an insect, not on the head); for the latter, Paris green or other poisons, which are taken into the stomach. Tons of Paris green are wasted every year on sucking insects.

The majority of plant diseases either conceal their vegetative parts beneath the tissues of the plant they grow upon, as black knot of the apples; or, like the powdery mildew of the gooseberry, spread these parts mainly upon the outside of the plant tissues which they enter only by means of suckers (haustoria). A hand lens will show which is which. In general there is no remedy for the former after they once gain entrance, though sprays are recommended as preventives; the latter are usually combatted with sprays and powders.

Four dollars will buy an excellent pump and hose suitable for home use. This outfit consists of a portable, double-acting force pump, attached to a hand bucket, with hose and nozzle for spraying.

If you need a larger apparatus, nothing is more satisfactory than the barrel form, which costs about ten dollars complete, with ten feet of hose and a nozzle.

Unquestionably these are two of the very best spraying outfits made; and with different nozzles, which cost only a trifle, you can use them for every domestic purpose, such as washing windows and wagons, for whitewashing, and even for painting. M. G. K.

POT-GROWN GRAPEVINE

# Trained Fruit Trees

We have not the least hesitation in saying that our Bearing Trained Fruit Trees have been more than satisfactory to everybody who has given them a trial. We have quantities of Apples, Pears, Apricots, Cherries, Peaches, Plums, and Nectarines, in all forms and varieties.

# English Pot-Grown Grape Vines

A fine lot in the following varieties: Black Hamburg, Muscat Hamburg, Muscat of Alexander, Black Alicante, Cannon Hall Muscat, Gros Colmar, Buckland Sweetwater, Foster's White Seedling, Lady Down's Seedling, and many other well-known kinds. ¶ We have a prime stock of Pot-grown Cherries, Nectarines, Apricots, Peaches, in all leading varieties. Other fruits are listed in our catalogue.

## Among Our Specialties

BLUE SPRUCE (TRUE). Our Stock consists of several thousand specimens, in all sizes, from 10 inches to 10 feet.

JAPANESE MAPLES. The true Blue-Leaf and Golden varieties.

EVERGREENS and CONIFERS. Suitable to plant now, in any part of the country. All our stock is dug with a large ball of earth filled with roots, and wrapped with burlap.

SHADE TREES and FLOWERING SHRUBS that will grow everywhere; a variety adapted to any locality.

OLD-FASHIONED FLOWERS. The largest collection ever held in America is now growing in our Nurseries. An idea of its extent can be had by reviewing our Hardy Plant Catalogue.

DOGWOOD. Red and White Flowered. PAEONIAS. Tree and Herbaceous.

HARDY RHODODENDRONS we have in large quantities.

ROSES. In our Nurseries and storehouses at this time are upwards of 100,000, in all the leading varieties: Hybrids, Teas, Bourbon, Penzance Sweet Briars, Monthly or China, Climbing, Pillar, and Rambling kinds, and the New Baby Crimson Rambler.

BULBS and ROOTS. Spring, Summer, and Autumn.

BEARING TRAINED FRUIT TREE

WE TAKE PLEASURE in inviting readers of *The Garden Magazine* who intend purchasing stock for beautifying their grounds this Spring, to visit our Nurseries, when we will be pleased to give any information as to the variety of stock necessary for any locality.

*See our Catalogues for prices and particulars* **BOBBINK & ATKINS,** Nurserymen and Florists, **RUTHERFORD, N. J.**

# HOW TO

## Make a Flower Garden

A charming and practical book by experts on every branch of the subject. The *Los Angeles Express* says: "With all its wealth of information the excellence of the illustrations and their number almost bring the book under the classification of art works." More than 200 beautiful half-tones. Price, net, $1.60. Postage, 16 cents extra.

## Make School Gardens

The first adequate and practical volume on a subject which promises to become as fundamental a part of popular education in America as it is in Europe. By H. D. HEMENWAY, Director of the Hartford School of Horticulture. Illustrated. Net, $1.00.

## Plan the Home Grounds

A very helpful book, by SAMUEL PARSONS, JR., a well-known landscape architect, and for many years Superintendent of Public Parks in New York City. Illustrated. Net, $1.00.

COUNTRY LIFE IN AMERICA · DOUBLEDAY PAGE & CO 133-135 & 137 EAST 16TH ST. NEW YORK · THE WORLD'S WORK

TO SELECT suitable plants and arrange them for proper effect near the house is the most difficult of all landscape planting, since style of architecture, light and shade, and other conditions call for individuality of design.

OUR WIDE EXPERIENCE and observation will set the matter right at nominal expense, and our choice plants will bring the desired results.

We have the finest varieties of Evergreens, Shade Trees, Flowering Trees and Shrubs, Old-fashioned Flowers and Roses. With our XXX Everblooming Roses you may have abundant bloom from June to November.

SEEING THE SUPERIORITY of our stock, a customer recently gave us an order for nearly $4,000 for delivery next Spring. Visitors welcome. Catalogue free.

**S. G. HARRIS, M. S., Tarrytown, N. Y.**

**LUTHER BURBANK'S DAHLIA SEED**

Dahlias can be raised from seed and will **bloom the first year.** The seed we offer, if sown early, will bloom profusely all Fall. The seeds germinate as easily and certainly as Zinnias, and from the very start are strong, stocky little plants. Transplant them carefully, as their growth demands, and keep the soil moderately moist. When all danger from frost is over, plant them in the border in the garden, and from then out they will grow as well as if from roots.

The seed we offer is of Luther Burbank's own saving, and he writes: "This seed will produce a greater proportion of large, clear, bright-colored, perfect double flowers than any ever before offered; 90 per cent. of good flowers can be expected." The colors are salmon, light and dark crimson, deepest purple to maroon and almost black, light straw, deepest yellow and a few white, mostly of the Cactus-type. **Pkt.** (50 seeds), **30c.; 3 for 75c.,** with Vaughan's 1905 Catalogue.

VAUGHAN'S SEED STORE

**84 & 86 Randolph Street, CHICAGO 14 Barclay Street, NEW YORK**

PEEP O'DAY

NORTHRUP, KING & CO.'S
SENSATIONALLY EARLY, NEW

SWEET CORN

is ten days to two weeks earlier than any other variety. The tenderest, juiciest, sweetest and most productive sweet corn ever grown. Suited to all soils and climates. Every private and market garden should have it.

**For 16c in stamps** we will mail you 300 seeds of PEEP O'DAY Sweet Corn—enough for sixty hills; also our 1905 Pictured Catalogue of Northern Grown Farm, Vegetable and Flower Seeds; also "Seed Truth," an attractive book—tells how to buy seeds to best advantage.

Or we will mail FREE our 1905 Pictured Catalogue and "Seed Truth," as described above.

*Genuine Peep O'Day is sold only in sealed packages bearing our name, trade mark and seal.*

Northrup, King & Co.

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**Strawberry Plants**

**and SEED POTATOES**

You can make more money if you plant intelligently. Write and tell us about your soil. We'll send you our **Free Descriptive Book.** Over 100 varieties.

**The FLANSBURG & PEIRSON CO.**

LESLIE, MICH.

## The Very Earliest Flowers

MARCH is the great month for starting flower seeds indoors, but there are certain days in February that stir one's blood with a desire for gardening, and then is the time to saw up an old soap-box or two and start some seeds of kinds that are slow to germinate or require an extra long season of growth. For the special purposes mentioned in "The Gardener's Reminder" (page 9), the following are highly desirable:

GOOD THINGS TO START NOW

| | |
|---|---|
| Tuberous begonias | Variegated periwinkle |
| Dusty millers | Single dahlias |
| Cigar plant (Cuphea) | Verbenas |
| Ten weeks' stock | Ageratum |
| Scarlet sage or salvia | Canterbury bells |
| Tufted pansies | *Cobœa scandens* |
| Cosmos | |

These may all be raised from seed started in a sunny window in February. Have you a south or southeast window in any of your living-rooms or in a light cellar?

If so, you may raise enough plants to beautify a large garden. A greenhouse is not essential for this purpose.

The first things to procure for the starting of these seeds are some "flats" or shallow boxes. These should be about three inches deep and of a length and breadth to be convenient to handle. They must have cracks or holes to provide drainage, which should be further insured by pebbles or similar material in the bottom of the box.

Next get the soil. This should be good, rich garden loam. Fresh manure need not be added, as it may cause too quick a growth. The object is to have the plants strong and stocky. Sift the soil, so it will be porous, not hard and lumpy. Now you are ready to sow your seed. The ordinary-sized ones should be planted to a depth equal to four times their own diameter. The very small seeds should be hardly more than pressed into the soil, and the "powdery" ones should have a pane of glass placed over the box to prevent their drying out altogether. Make the soil moist and press with a board after the seeds are planted, or they may dry out.

During growth keep the soil moist by means of a rubber bulb sprayer; any other kind of watering is likely to wash the seeds out. Try to strike a happy medium in the amount of moisture, for too much will give a chance to fungi, which cause the seedlings to damp off, and too little will interfere with their sprouting at all.

Next month there will be given in this department full directions concerning temperatures, transplanting, and later treatment.

A. R. M.

¶ Plants sometimes need to be washed as well as fed. The roots may be moist, and the leaves dust-covered. How easy to bathe them if you have a

**CALDWELL TANK AND TOWER**

*Our catalogue gives full information*

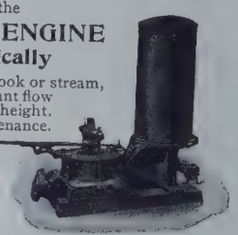
**W. E. CALDWELL CO., LOUISVILLE, KY.**

**Running Water IN YOUR Country Home**

can be had by installing the

**RIFE HYDRAULIC ENGINE**
**Operated Automatically**

by the power furnished by any brook or stream, however small, and produces a constant flow in your house at any distance or any height. Absolutely no cost of maintenance. Requires no attention. We make a specialty of equipping country places with a complete water-works system, extending to stable, garden, greenhouses, etc. 4,500 in successful operation. Catalogue and estimates on request.



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**Liberty and Greenwich Sts. New York City**

**GARDEN SPRAYERS**

Healthy trees, shrubs, vegetables, and fruit are possible only when freed from insects by using the

**Auto-Spray**

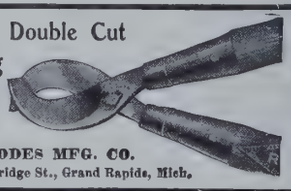
the simplest, most economical and improved compressed air sprayer. Requires no continuous pumping as do the knapsack sprayers and bucket pump. A few strokes of the plunger compresses enough air to cover a quarter acre of closely planted flowers, fruits or vegetables. Capacity four gallons. We manufacture the largest line of

HAND AND POWER SPRAYERS

in America. *Outfits specially adapted for destroying the San Jose Scale. Send for catalogue describing all kinds.*

**THE E. C. BROWN COMPANY**
**292 State Street, Rochester, N. Y.**

**Rhodes Double Cut Pruning Shear**



Cuts from both sides of limb and does not bruise the bark.

We pay Express charges on all orders.

Write for circular and prices.

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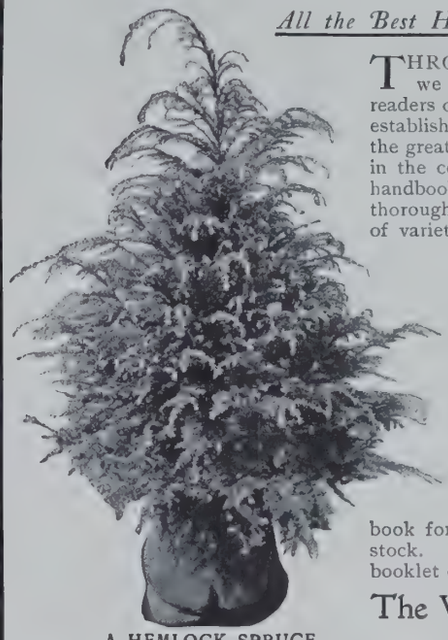
# EVERGREENS

*Are a Specialty of the*

## Glenwood Nurseries

*All the Best Hardy Varieties are Grown*



A HEMLOCK SPRUCE
from our Nursery rows

THROUGH our handbook for 1905 we should like to introduce the readers of this new magazine to the old established Glenwood Nurseries where the greatest assortment of nursery stock in the country is grown. This unique handbook is handsomely illustrated and thoroughly descriptive of the hundreds of varieties of

**Evergreens and Deciduous Trees and Shrubs**

that we offer. It tells the time of flowering, the height at maturity, the soil requirements, the range of hardiness, and suggests uses for each plant. It is more than a catalogue of sizes and prices; it is a handbook for all who intend using nursery stock. Write for it and ask for our booklet on "Landscape Gardening."

**The WM. H. MOON CO.**
MORRISVILLE, PA.
Philadelphia Office, 6116 Stephen Girard Bldg.

# "Beautiful Grounds"

## A MANUAL

Containing
Practical
Information
and Suggestion

## SENT FREE

IT contains a department of Information and Suggestion which deals exhaustively with the beautifying of homes by the use of trees, shrubs, and flowers—and will be a great help to those who contemplate doing any work along this line. We tell you just what to do and what not to do, with directions for planting and caring for the stock you buy. You should send for this Manual if only for this one department. In the section regarding landscape department, we give some very valuable hints to people who are thinking of buying a place.

IT tells of our History: Since the establishment of the Nursery nearly half a century ago by P. S. PETERSON there has been a steady increase in the growth of the business until now the plant covers 480 acres. We have as rich a *variety* of soils for the gradual fibrous rooting as can be found in any block of land.

IT also tells of our great assortment of Nursery Stock and our unequaled shipping facilities which enable us to forward stock at short notice and insure your receiving it in fine condition. We have given you above a short list of the subjects treated in our Manual (not all, by far), and we would be pleased to send one to you if you care to send your name and address.

PETERSON NURSERY, 1200 West Peterson Ave. Chicago, Ill.

PART OF 75 TREES MOVED IN 1902-1903 FOR CLARENCE MACKEY, ESQ.
GUY LOWELL, LANDSCAPE ARCHITECT.

# Hicks' Patent Treemovers

Permit the highest development of landscape designing in the shortest time.

## EVERGREENS

Our aim: To grow all the available species of evergreens *thoroughly adapted* to the vicissitudes of this climate. We offer evergreens up to 45 ft. high, and move them at any time of year. Our movers carry these evergreens horizontally under wires.

Send for "Trees for Long Island," which tells what to plant, what not to plant, and why. Spring treemoving should be ordered now.

*12 Treemovers* *Expert Men* *Sent Anywhere*

**Isaac Hicks & Son,** (Edward Hicks, Henry Hicks) **Nurserymen and Scientific Treemovers**
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# Grape Vines

NO garden is complete without a sufficient number of grape vines to supply an abundance of this delicious fruit. For nearly 40 years we have been furnishing high grade vines for this purpose.

¶ We will send ten large vines of the best table varieties, including three red, three white and four black for $1.00 delivered free. *Send for our elegant Illustrated Descriptive Catalogue and Price-list.*

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*Grape Vine Specialists* Fredonia, N. Y.

**"You plant good seed if you buy of Miss White."**

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**Sent free,** my dainty catalogue of the choicest and rarest of beautiful flowers. If you inclose 6c. and addresses of two other flower lovers, I will send you also my Surprise Packet (500 seeds of 20 choice annuals, mixed) and certificate for my 5th Annual **Prize Contest** for flowers grown from it. First prize, $50.00. Catalogue gives particulars. **Write me—do it now.**

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## SPECIALTY

The Largest Collection in America

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the best in Carnations, Cannas, Geraniums, and other tender House and Garden plants.

An extensive list of Hardy Perennials for Lawn, Border, and Wild Garden, including Foxglove, Iris, Phlox, etc.

Send for Profusely Illustrated, Descriptive Catalogue for 1905.

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*Established in 1876*

22 West Maumee Street Adrian, Michigan


# The WINDOW GARDEN

## A Boston Fern with Fronds More Than Eight Feet Long

THE fern shown below is probably a sport from the Boston fern (*Nephrolepis exaltata var. Bostoniensis*), differing from it in having wider fronds. This was sent me without a label by one of the leading plant companies as a premium with a large order in the spring of 1899. It then had three or four small fronds, none more than eight inches in length. I potted the young plant in one-half wood soil, a little well-rotted barn-yard manure, and good garden soil. It grew luxuriantly for three years without change of soil. In the fall of 1902 I took it from the pot and with a sharp carving-knife cut the roots in four parts, carefully separating the fronds. I then gave fresh soil, potting the largest in large tin pail, with

**48. A Boston fern with more than 200 fronds, the longest of which measures eight feet four inches**

about two inches of broken pots in the bottom. I gave plenty of water when required, which, during the winter, when the house is warm, is almost daily. The house is heated with combination steam and warm air. The fern is placed on a bracket between the two center windows having a southwestern exposure. I do not move the plant in the summer, but by drawing down the shades and closing blinds of all except the eastern window protect it from the strong sunlight in hot weather.

Dushore, Pa. MRS. RUSH J. THOMSON.


**HIGH CLASS**

# Flower and Vegetable Seeds

For years we have been striving to show our many friends that we have a superior selection and strains of Flower and Vegetable seeds.

## Arlington Tested Seeds

are known to be true; we have tested them all.

Now we want all who are interested in seeds to have our 1905 Catalogue. **It is new. IT IS UP TO DATE with the latest novelties and specialties.** Before you buy we want you to see it.

If you will send us your address we will mail it to you **free.**

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SEEDSMEN
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# ASK US FOR OUR CATALOGUE

You can well afford to consider our stock, business facilities and prices before placing your spring order for

**Ornamental or Fruit Trees, Evergreens, Shrubs, Vines, Roses, Herbaceous Plants, etc.**

We cordially invite all who are interested to visit our Nursery.

**THE ELM CITY NURSERY CO.**
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**"Plants and Plans for Beautiful Surroundings"**

Full of invaluable information, illustrations of flowers and beautiful lawns. Our experience at your service free. If your home is small and modest make its surroundings charming and attractive; or, if you possess spacious grounds, have them tastefully planned, artistic, and a delight to cultured tastes. This catalog is *free*. We also publish

**"Landscape Gardening for Amateurs"**

Containing 64 pages, beautifully illustrated, and necessary information for laying out in an attractive and artistic way Home grounds, also School, University, Sanitarium and Factory grounds. It is an excellent guide and reference book for those interested in beautiful surroundings. Mailed to any address on receipt of $1.00.

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Designed and erected for R. B. Angus, Esq., Ste. Anne de Bellevue, Quebec, Canada

### ARE YOU A LOVER OF FLOWERS?

If so, you may enjoy the company of your favorites even in zero weather by having one of our glass structures, either in the form of a conservatory attached to the residence or a separate greenhouse. We manufacture and erect every type of horticultural structure of any dimensions. We can meet any horticultural or architectural requirements.

Write and tell us about what you would like, and we will prepare sketch and estimate, free of charge, and submit for your consideration. Our estimate will include the structure, erected complete with heating and ventilation, ready to receive the plants, or if you desire it we will furnish the material only, cut and fitted ready to go together, with complete working drawings for its erection.

*WRITE US TO-DAY*

*We also manufacture and furnish hotbed sash and frames, staging, special hand-made greenhouse putty, "Pierson" steam and water boilers, and all kinds of heating material.*



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# Fruit Trees, Roses Vines and Plants

by ordering direct from our nursery. We employ no tree agents at salary and expenses, but give you that advantage in better prices. Send for our

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Contains everything you want for the orchard, garden, lawn or park. Fill out the order blank and mail direct to us. We make no charge for boxing. Send for the book to-day, stating where you saw this advertisement, and we will also mail you a copy of GREEN'S MONTHLY FRUIT MAGAZINE.

**Surplus Stock** We have a surplus of Rose Bushes, Weigelia, Deutzia, Spiræa, Tree Cranberry, Hydrangea and Barberry. We have also a surplus stock of Carolina Poplar and Lombardy Poplar. Also a surplus of **Apple Trees, Grape Vines** and **Currant Bushes,** particularly the new **Red Cross Currant.** We will be glad to make special pen prices on these items if you desire them in lots of 50, 100, 1,000 or more.

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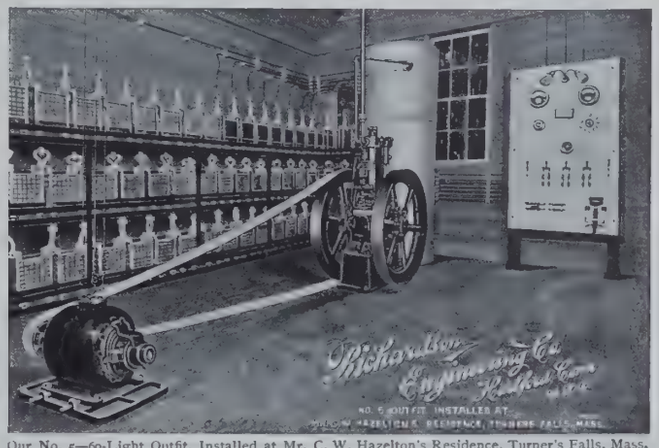
FOR PRIVATE RESIDENCES, GREENHOUSES, COUNTRY ESTATES, COTTAGES, OR ANY PLACE, ANY SIZE

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All our outfits complete in every detail, including storage battery (for light every hour in the 24), and gas, gasoline or steam engine, which can be used for pumping, refrigeration, and other work.

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130 complete electric light outfits, illustrated and described in our 56 page catalogue. Address, **Lighting Dept.**

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## The Garden Beautiful

Many men, and women too, take delight in the cultivation of vegetables, fruits and flowers. They not only make of gardening a recreation and a pleasure, but they also make it a profitable occupation. The back-breaking and time-killing methods of the olden time have been done away with. Cultivation is more than ever a science, and the labor connected with it is now a mere pastime.

# IRON AGE
## Garden Implements

have made the market gardener's life a simple one. With these implements all kinds of garden work can be easily done by hand. For cultivating the amateur gardener will find the **No. 1 Iron Age Double and Single Wheel Hoe** just the tool needed. It has a full equipment of hoes, plows, rakes, etc., and with these various interchangeable parts the work of cultivation can be done quickly and with greater ease than ever before. Although this is a tool designed to accomplish so much, it is very simple and strongly built. It's an implement that has given universal satisfaction wherever used, and it's a decided favorite with all gardeners. The illustration above gives an excellent idea of the application of this tool, and shows the ease of operating. The usefulness of this implement can be further increased by adding at any time either a seed drill attachment or a fertilizer attachment. And these different attachments can be bought just as needed and at small outlay. Only a few minutes are required to make the change from one tool to another.

If you are interested in gardening, and you want to lessen your work and make more money, send for the **IRON AGE BOOK for 1905.**

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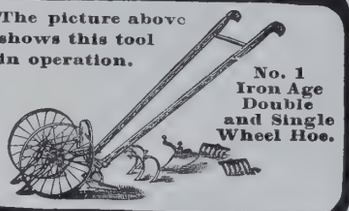
**The picture above shows this tool in operation.**



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First Quality stock, including all the best in the Hybrid Perpetual Class. The Hardy Yellow Roses, Harrisonii, Persian Yellow, and the New Everblooming Yellow, "Soleil d'Or."

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### MY NEW SEEDLING RAMBLERS

In white, pink, and crimson, and the new dwarf Baby Rambler. Choice double Hollyhocks, Herbaceous Paeonies, and Phlox.

*My catalogue mailed on application*

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**Earliest and Best Garden**

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## Johnson & Stokes' Seeds

A packet of **Sparks' Earliana Tomato** and a pint of **Peep o' Day Sweet Corn** will give you the lead.

We'll mail them on receipt of **25c**, and also send you our **Garden and Farm Manual,** which tells about other seeds of

**Up-to-date vegetables of choicest sorts**
**New and rare flowers of easiest culture**

If you don't want to order now, send for the Manual (free) and study it so that you will know what you want later on.

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**Philadelphia**

## A Successful Home Fruit-Garden

IN spite of the profusion of fruits that can be bought in the markets in California, there is every inducement for each family to grow its own. Home-grown fruit right from the trees is eaten before it loses that perfect delicacy of flavor which it is impossible to get in commercial fruit. There is no thought, either, that what one is eating has been fingered by a dozen dirty hands, or has been thrown into dirty boxes and hauled miles over dust-clouded roads, to lie hours in an open store on a busy street before it comes to the table. Or, if it is winter, there is no shuddering apprehension that the dried peaches have been "tromped" by the feet of the packing-house crew. Even in California, ideal fruit country though it is, there are unavoidable drawbacks to the complete enjoyment of fruit unless one raises it himself.

I know of one family of five at Fresno that supplies much of its own fruit, even on so small a town place as three lots, 75 x 150 feet in all, with no cost but the water to irrigate the trees, and the slight trouble of picking the fruit. From six carefully tended trees they gather a succession of fruits from June to December. First, the apricot bears more than enough to supply the table daily with fresh fruit and delicious ices. What is left over from these uses is canned or made into marmalade, several quarts of each being stored away for the winter. All this from one tree not yet fully grown!

Then the fig-tree yields the first of its three crops for the summer. Fresh figs with sugar and cream are served each morning for breakfast. Much of the fruit cannot be eaten this way, and falls to the ground before it can be picked. These are dried and packed away, or candied, or made into preserves. With short intervals between, two more crops ripen before the summer is gone.

A pear-tree and an almond-tree are just coming into bearing.

Late in December two trees are full of golden oranges, which are picked just about Christmas time. The crop of two large boxes lasts well into February.

The only care required by the trees is irrigation with a garden-hose during the dry summer weather, and pruning once a year. The heavy fall of fig-leaves in the autumn gives a quantity of rich leaf mold which is used as fertilizer.

The owner does all the necessary work on his trees and vines outside the hours of a busy professional life, and considers the quality of the fruit and the pleasure of growing it an ample return for his trouble.

FRENCH STROTHER.

Directory of

# Stock Breeders

Under this heading will appear each month announcements of reliable stock breeders


CAIRNSMUIR FOX TERRIERS

MAJOR G. M. CARNOCHAN

RIVERDALE-ON-HUDSON, NEW YORK CITY, offers one hundred young Fox-terrier dogs and bitches for sale. This is an excellent opportunity to obtain the Cairnsmuir blood at very reasonable prices. All are eligible for registration. Prices and pedigrees can be obtained on application. Welsh terriers also for sale.

ORPINGTONS STOCK & EGGS FOR SALE

BUFF BLACK & WHITE

SEND FOR CATALOGUE AND MATING LIST

WILLOW BROOK FARM

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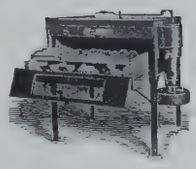
RAISE YOUR OWN POULTRY

With one of our 120-egg Incubators you can hatch all the Chickens you can use, and sell enough to cover all cost. Now is the time to prepare for early hatches. Don't delay. Send for large illustrated catalogue. It's FREE.



GEM INCUBATOR CO.

Box 446, DAYTON, OHIO

**Bees** Few people realize the interest and profit in keeping bees. My business is to supply bees and Apiarian material. I have prepared a little booklet on bees, giving details of management and the profits to be derived from them. Sent on receipt of 10 cents, including catalog. Bees require little care, increase rapidly, and each hive produces from 30 to 50 lbs. of honey a year.

I. J. STRINGHAM

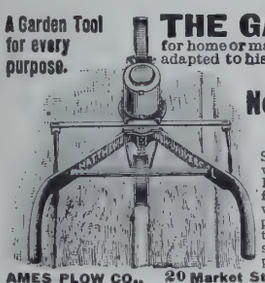
105 PARK PLACE, N. Y. Apiaries, Glen Cove, L. I.

A Garden Tool for every purpose.

THE GARDENER for home or market finds tools best adapted to his work in the line of

Matthews' New Universal

Hand Seeders and Cultivators.



Singly or combined with Hoes, Plows, Rakes, Markers. Send for Free Booklet of valuable information for planting and cultivating the garden and full description of these implements.

AMES PLOW CO., 20 Market Street, Boston, Mass.


# Want Department

A special low rate is made in this department for the convenience of readers to advertise for a gardener, or for gardeners to offer their services.

Advertisements in this department for the March number must reach us by February 1st.


# DO NOT MISS

## The "MARCH GARDENING MANUAL" of

# Country Life in America

This double number will be a sumptuous garden year book, indispensable to every owner of a flower or vegetable garden.

The articles will be practical, timely, and inspiring, and the illustrations will be of surpassing beauty.

120 PAGES 130 PHOTOGRAPHS

*SOME OF THE FEATURES ARE:*

HOW TO GROW HARDY ROSES—16 photographs

THE BEAUTIFUL ESTATE OF MAGNOLIA-on-the-Ashley—13 photographs

BAMBOOS FOR EVERY PLACE AND PURPOSE—13 photographs

THE ART OF WILD GARDENING—12 photographs

THE PLANNING OF A MAZE—7 photographs

THE GARDEN OF SURPRISES—9 photographs

A SEASHORE GARDEN—7 photographs

THE ANDERSON GARDEN OF WELD—16 photographs

A JAPANESE GARDEN IN AMERICA—6 photographs

There will be twenty or thirty other articles that will cover the entire field of gardening, including these:

FIVE SPECIAL PRIZE ARTICLES

A GIRL'S VEGETABLE GARDEN

BEAUTIFYING A CITY LOT

A GARDEN A MILE AWAY

A PRAIRIE GARDEN

A WILD GARDEN IN TOWN

COUNTRY LIFE IN AMERICA

DOUBLEDAY PAGE & CO

133-135 & 137 EAST 16TH ST.-NEW YORK

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*P. S.—This number sells for 50 cents, but it will be included, together with the October and December double numbers, in a year's subscription at $3.00.*

*A new volume of KIPLING stories*

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It contains "THEY," the most widely discussed short story of recent years, and ten other tales which, as the N. Y. *Globe* says, show Mr. Kipling as "to-day, more than ever, the inevitable master of the short story." ($1.50.)

Doubleday, Page & Company, 133-137 East 16th St., New York

*P. S.*—Other famous books by Rudyard Kipling are published by us also:

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*The Best Catalogue of Seeds, Plants, Bulbs, Etc.*

# DREER'S GARDEN BOOK For 1905

Tells how to grow Vegetables and Flowers and offers the largest and most complete list of SEEDS, PLANTS, BULBS, etc. This beautiful catalogue is now ready and will be mailed

## FREE

to all applicants who mention THE GARDEN MAGAZINE when writing.

Contains 224 pages with hundreds of illustrations made from photographs, and six full-page colored plates painted from nature especially for this book. *Write for a copy to-day.*

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VEGETABLE, FARM, and FLOWER SEEDS

GARDEN TOOLS and HORTICULTURAL BOOKS

Descriptive illustrated catalogue mailed free on application

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I grow in quantity here in cold New England are the best hardy garden sorts, the old reliable kinds that everybody wants for the border or shady corner. Also the best hardy Ferns and Wild Flowers of New England suitable for cultivation. Illustrated catalogue sent on request

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says "Beautify America." Send 10c. for a year's membership in the Flowerlovers' Club and 1 pkt. each of New Japanese Morning Glory, Flowerlovers' Nasturtiums and Mixed Gourds to plant on that bare fence, wall, or other unsightly place. My Little Green Book free.
**Henry Saxton Adams, Seedsman, Jamaica Plain, Mass.**

# THE BAY STATE NURSERIES

have just issued their new **Catalogue for 1905**, designed especially for **Gardeners** and **Owners of Large Estates.** It contains many attractions for buyers of Nursery Stock in quantity. Send us your name, and we will send you the book.

We offer a complete line of healthy

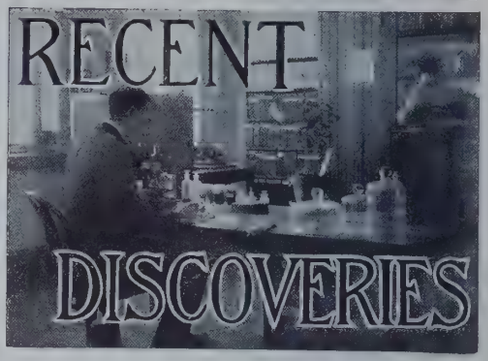
## NORTHERN-GROWN NURSERY STOCK

including **Shade and Evergreen Trees** in great variety. **Rhododendron Maximum and Kalmia Latifolia** in carloads. **ROSES** of all classes in many sorts. **Shrubs** and **Climbing Vines** of every description.

Our **Herbaceous Department** contains over **Six Hundred Varieties** of **Hardy Perennials**, new and old. **PAEONIAS, PHLOX, IRIS, HARDY ASTERS, Etc.**

Our nurseries are located eighteen miles south of Boston. We have rapid transit both north and south. Freight arrives in New York or Boston the next morning after shipment.

THE BAY STATE NURSERIES, W. H. WYMAN PROPRIETOR North Abington, Mass.




## Inoculating the Soil

THREE or four years ago a great German scientist discovered and patented a way of sending out material for inoculating seeds or soil with the bacteria necessary to enable peas, beans, clover, alfalfa and other legumes to get free nitrogen from the air and thereby add to the richness of the soil, but the experience was a commercial failure, because the bacteria in the scientist's laboratory were fed upon rich food. Dr. Moore, of the United States Department of Agriculture, found that the bacteria fed upon food rich in nitrogen became lazy and would not work hard enough to get nitrogen from the air. He therefore fed the bacteria on food poor in nitrogen, with the result that the United States Department of Agriculture is now sending out to all applicants, free of charge, small packets with full directions for inoculating the seeds or soil. Most of the plants concerned are forage plants, or plants used for green manuring, but it will pay any one who has a garden to write to the Department of Agriculture for material for inoculating garden peas and beans.

## More Enjoyment and Less Work

IN this department we invite suggestions concerning anything connected with the home fruit, flower or vegetable garden. If you have worked them out, so much the better. We want to know the new and unique things that are going on in all parts of the country, and offer a five-dollar bill for the best suggestion that comes to us each month.

This sort of friendly and informal competition is very popular among amateur gardeners in England, and it is to be hoped that Americans are not deficient in imagination and ingenuity in the planning and execution of their gardens. As a sample subject, we would suggest "How to Have More Fun and Less Work in the Garden."

Send all contributions to the "Suggestions Department," THE GARDEN MAGAZINE, 133 East Sixteenth Street, New York, N. Y.

Stumpp & Walter Co.
50 BARCLAY STREET
NEW YORK
COLLECTION VEGETABLE SEEDS.
½ PT. PEAS, EARLY JUNE
½ PT. CORN METROPOLITAN
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1 PKT. MUSK-MELON SELECTED STOCK
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1 PKT. TOMATO, EARLIEST OF ALL
COLLECTION, 6 PKTS., POSTPAID, 50c

VEGETABLE FLOWER

This is a reproduction of the back cover of our superb 1905 catalogue of

VEGETABLE AND FLOWER SEEDS

**Bulbs, Roses, etc.** It is packed full of interest to all who plant. We might almost call it a cyclopaedia, although it is not too voluminous to make the contents accessible. It will be mailed free to the readers of *The Garden Magazine*. Write for it.

STUMPP & WALTER COMPANY, 50 BARCLAY ST., NEW YORK
Branch, 404 East 34th Street

**A SUGGESTION:** Send for the attractive collection offered on the above cover. Then you'll be ready to start your garden early

# The Best Roses in America

We are "PIONEER ROSE GROWERS" and have made the "Queen of Flowers" a constant study for more than a generation. As a result, we are now able to offer you one of the most complete assortments obtainable anywhere—the cream of the best varieties, some from each class.

Besides our excellent assortment, it is the splendid QUALITY of

*"C & J" Roses*

that has won for them their reputation. Even the amateur knows that in buying roses, quality counts for much. We grow roses for every possible purpose. If you would like to know just the roses best adapted to your own locality, write us and we will tell you what kinds to get.

This information, together with our new book *"How to Grow Roses"* and our *"New Floral Guide"* (136 pages about the best Roses, and 500 other choice plants for improving home grounds), will be sent free of charge to readers of *The Garden Magazine*. Write to-day.

**THE CONARD & JONES CO., Box 43, West Grove, Pa.**

*"Grand Prize" St. Louis World's Fair, 1904*

# PLAN during WINTER MONTHS how to make your garden a spot of BEAUTY and joy through the summer.

## We can supply you in BEST quality:

**Amaryllis** in all known sorts.
**Begonias** single and double in all colors. Leaf Begonias, etc.
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**Caladium fancy leaved,** especially the *Brazilian* sorts, which are equal to *Orchids* in beauty
**Dahlias.** Show, Decorative, Pompon, *Cactus* in all old and *new* sorts.
**Gladioli** in all shades, newest as well as older kinds.
**Iris.** Japan Kaempfer, German Iris, Iris Siberica, etc.
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**Paeonias.** The finest Japan *herbaceous* and *tree* sorts, also Paeonia officinalis, sinensis, tenuifolia, etc.
Herbaceous Perennials, Phloxes, Anemones, etc.
**Roses** of all descriptions, **Rhododendrons, Hydrangeas** *new* and *rare.*
**Japan Maples,** Conifers, etc. **Flower seeds.**

***We will allow a special discount of 5 per cent. on all orders reaching us by March 1st***

Write us for *any information whatsoever* in *horticultural line* and we will give it gladly and freely. Send for our Catalogue

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WE HAVE OTHERS TOO

Our 1905 Garden and Floral Guide will tell you about them, and also about the kinds of seeds that produce results. A postal card will bring it FREE.

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OUR ORCHIDS ARE THE BEST AND FINEST THAT CULTURAL SKILL CAN PRODUCE

If you contemplate buying *Orchids* in small or large quantities, we respectfully solicit your orders.

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*Orchid-growers and Importers*

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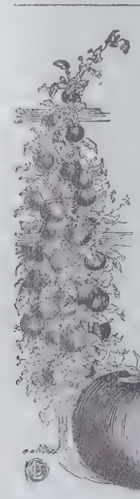

TRY THE NEW

## Majestic Tomato

The greatest vegetable novelty of the season. By all odds the largest, finest flavored and most productive in existence. Thousands of our customers who received small trial packages last spring wrote us in the fall that it surpassed all other sorts and produced 100 lbs. to 147 lbs. of fruit to the plant. Many reported single tomatoes weighing 3 lbs. to 5¾ lbs. each. Just think what this kind of a crop would mean on an acre of ground. The fruits are not coarse grained and poor like other large sorts, but are smooth, solid, have few seeds, and are unsurpassed in quality. Of fine shape and beautiful color. Last year the seed sold at 40c. per packet of 100 seeds, but this season we have reduced price to 15 cts., and in addition to this we are offering

*$100.00 IN CASH*

prizes this year for the largest tomato grown.

Our large illustrated catalogue describing the above and many other choice novelties will be sent free if you mention this paper.

IOWA SEED CO.,
Des Moines, Iowa

## NEW GLADIOLUS PRINCEPS

**The Best and Largest Gladiolus in Existence**

IT is not only large, but its blooms are most effective and graceful for use in vases or jardiniers. Its handsome foliage makes an unsurpassed setting for the brilliant, amaryllis-like blooms which open more widely than any other variety. Its color is rich crimson with intense shadings in the throat, with broad white blotches across the lower petals. The petals, which are very wide, are much rounded, forming an almost circular flower. Princeps stands the sun and wind well, and opens all flowers, even to the last bud, when used for cut blooms in vases.

This and many other desirable Spring bulbs and plants are offered in Vaughan's Gardening Illustrated, a free copy of which is mailed with any order for this novelty. Price, ordinary bulbs, each 25c.; 3 for 65c.; medium bulbs, each 30c., 3 for 80c.; large bulbs, each 35c.; 3 for $1.00, prepaid with catalogue. All are of blooming size.

VAUGHAN'S SEED STORE
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## Strawberry Plants That Grow

BEST STANDARD VARIETIES

Also Raspberry, Blackberry, Currant, and Grape Plants, Asparagus Roots and Seed Potatoes in assortment. All stock **warranted high grade and true to name.** Forty-page Catalogue with cultural instructions, Free.

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## EVERYTHING for the GARDEN

is the title of **Our New Catalogue for 1905**—the most beautiful and instructive horticultural publication of the day—**186 pages—700 engravings—6 superb colored plates—6 duotone plates of vegetables and flowers.**

To give this catalogue the largest possible distribution, we make the following liberal offer:

## Every Empty Envelope

**Counts as Cash**

To every one who will state where this advertisement was seen and who encloses **Ten Cents** (in stamps), we will mail the catalogue

AND ALSO SEND FREE OF CHARGE

**Our famous 50 cent "HENDERSON" COLLECTION OF SEEDS**

containing one packet each of *Giant Mixed Sweet Peas; Giant Fancy Pansies, Mixed; Giant Victoria Asters, Mixed; Big Boston Lettuce; Henderson's Freedom Tomato and Non plus ultra Radish* **in a coupon envelope,** which, when emptied and returned, will be **accepted as a 25-cent cash payment** on any order amounting to $1.00 and upward.

PETER HENDERSON & CO. 35 & 37 CORTLANDT ST. NEW YORK CITY

## What to Do with Window-Garden Bulbs After Blooming

DO not throw away bulbs after they have flowered in the window. Take a little care of them until you can plant them outdoors, and they will flower in the garden. All you have to do is to see that the bulbs get thoroughly ripened.

The window is the best place for them, because it has the most sunlight, but if the plants are unsightly they may be removed to a light cellar. Give them less water now than before blooming. When the leaves get yellow the bulbs are ripening. It is proper to cut off the flower stalks, but not the leaves. Unless the leaves reach full size and maturity, the bulbs will not get large, strong, and ripe.

Dutch bulbs (tulips, hyacinths, crocuses, narcissi, etc.) are very slow to regain their vitality, and should not be forced two successive seasons. Plant them in the garden. The largest and heaviest hyacinth bulbs which have spent the season outdoors may be potted the first of September, and will give bloom extra early for cutting.

Several kinds of bulbs require frequent transplanting. Hyacinths and some others should have their place changed every year. Crocus should be transplanted every three or four years. The same interval is best for hardy narcissi also, or they will be overcrowded and become weak and spindly, and perhaps refuse to flower.

The Bermuda lily will bloom again in August if treated as follows, but will not be good for forcing the next winter: After it blooms, withhold water for ten days, then put the bulbs in a coldframe or sheltered place. Set them close and fill the spaces with earth and cover with three or four inches of dry leaves. If it is spring no sashes will be needed.

When cyclamen is through blooming withhold water gradually. The corms should not be allowed to get dry. A shady coldframe is best for them during the summer.

It is not worth while to attempt to raise Chinese sacred lilies a second time if they were grown in water the first time. On the other hand, if grown in earth, they and all other polyanthus narcissi will bloom every year if they receive proper treatment, such as should be given to other bulbs after flowering. When repotted in fresh, rich soil early in the fall, and kept moist until the growth starts, they have been known to bloom in November—before the new bulbs, in fact.

H. C. M.

# TREES

**Fruit and Ornamental.**

**Shrubs**
**Evergreens**
**Roses**
**Hardy Plants**

All the Best and Hardiest Varieties. Largest Collections in America. **Gold Medal**—Paris—Pan-American St. Louis. 102 prizes N. Y. State Fair, 1904. Illustrated Descriptive Catalogue (144 pages) **FREE** on request.

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**Established 1840.** Mention this publication.

# GLADIOLI for the GARDEN

If you want a garden of rich colors and a variety of exquisite shades you should plant Groff's Hybrid Gladioli. There is no flower of such easy culture, embracing the great range of color with endless combinations and varieties, as these Hybrid Gladioli. The graceful stalks with their burst of gorgeous coloring make the garden a veritable fairy land. Every shade or combination of shade can be produced. I am the United States representative and grower of Groff's Hybrids. Awarded the Grand Prize, World's Fair, St. Louis, 1904.

*SEND FOR CATALOGUE*

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We are specialists in Orchid growing, and can supply any variety of these rare and interesting plants. Our illustrated Catalogue will gladly be mailed on application.

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*Exotic Nurseries.* *Rutherford, N. J.*



# Twenty Years' Experience

in close practical touch with large and small estates in all parts of the country enables us to offer to every owner of Grounds and Gardens our special help in Designs and suggestions for the improvement of such, and with greater economy and saving than can be secured in any other way. We study to meet the individual requirements of each place, and supply both Plans and Material in the most economical manner. ¶ Whether in Iowa or Maine our practical suggestions enable you to plant your Lawn, your Garden, or any other portion of your place, with a great saving, and we ask you to write us and we will help you, giving our time to accomplish something for you in a practical and painstaking fashion. ¶ We send men of experience at any time at nominal rates to advise upon every leading question of Landscape work. Drainage, House location, Road making, Formal and old-fashioned Gardens and every feature of Landscape work, we give close and careful attention to. We will refer to many hundreds of private properties which we have brought to perfection. ¶ Our Nurseries are among the largest in the United States, and we ask but one profit in supplying our clients, selling at lowest rates possible. ¶ We offer every known hardy form of

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at prices which, after you investigate, will attract your close attention. ¶ If you have any problem to solve; any difficulty to meet in the way of Landscape work and Gardening, we are willing to assist, and will be glad to have you write us. From all parts of the country we have had inquiries in past seasons and with good results, and we invite correspondence with those who wish aid of an expert character. WRITE US, AND SEE OUR CATALOGUE.

## THE SHADY HILL NURSERY CO.

44 Broad Street, Corner Milk - BOSTON, MASS.



# A Little Book About Roses

Also Peonies and Ornamental Hedge Plants

*THE WORLD'S BEST*

"*A bright little Book for bright people,*" written by a Specialist

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Kills insects on vegetation, fowls and calves. In use since 1880. *Is effective and safe to use.*

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PAN-AMERICAN GOLD MEDAL

**Superb** Cactus, Show, Fancy, Pompon, Decorative, Single **Dahlias**

**20 KINDS** (my selection) **$1.00**

Purchaser's selection $1.00 dozen and up. 500 kinds, latest and best. Catalogue and circulars free.

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# STARK FRUIT BOOK

44 pages 9 x 12 inches; 22 colored plates showing in natural colors 216 varieties of Fruit, with concise description, including season of ripening of each; 64 half-tone views of Nurseries, Orchards, Packing Houses, etc. **Send 50 cts.** and we will send the book post-paid, and **Rebate Ticket** permitting return of book **by mail** within 60 days and we refund 50 cts. Or, mail within 1 year, Rebate Ticket with $12 order for nursery stock and we credit **$1.00** in part payment on order and you KEEP THE BOOK **free. WE PAY THE FREIGHT.**

**WE PAY CASH** weekly and want **more** home and traveling salesmen. OUTFIT FREE.

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**Grand Prize—World's Fair, St. Louis**

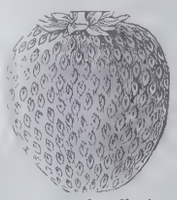
**Walter Baker & Co. Ltd.**

**Established 1780 Dorchester, Mass.**

**45** HIGHEST AWARDS IN EUROPE and AMERICA



## *STRAWBERRIES*



*Finest plants ever grown*

WE are engaged in testing out and breeding for profuse bearing the varieties that should have preference. Whatever else you will plant this spring, don't omit

MARK HANNA

THE GREAT NEW VARIETY

A good pollenizer and dependable bearer in great quantities of large, luscious, shapely berries. Plants a rich dark green; vigorous, strong growers. Whether for the home garden or for market, no other variety will yield richer returns. Our spring of 1905 list includes upwards of 40 varieties—the choice kinds. We guarantee the quality of plants to please.

HARRISON FRUITS

propagated in a favorite climate, include every variety that is choice in **Apples, Peaches, Pears, Plums, Grapes, Cherries** and **Strawberries.** We are shipping plants and trees to nearly every State in the Union. **Safe delivery guaranteed.**

OVER 1,000 ACRES IN FRUITS

*Write for Free 1905 Fruit Catalog*

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*The best sorts in greatest variety*

CACTUS DAHLIAS A great assortment

Garden Seats and Rustic Furniture

*Send for Catalogue*

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¶ Tender plants predominate in so many modern gardens that lovers of flowers should be grateful to Mr. J. Wilkinson Elliott for bringing forth an argument, in the shape of a sensible and practical book, in favor of our native asters, lilies, hollyhocks, and other hardy plants. "A Plea for Hardy Plants" is sure to appeal to all garden makers. It is well illustrated. Net, $1.60 (Postage, 12c.)

DOUBLEDAY, PAGE & COMPANY
133-137 East 16th Street - New York City



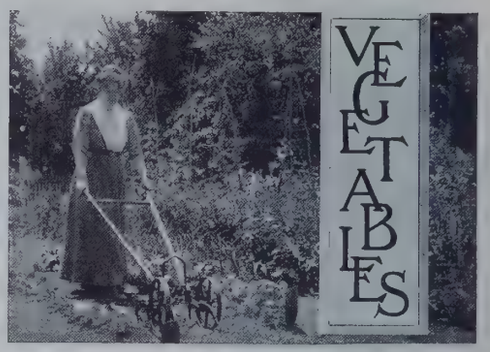
**Vaughan's Special**

## Scarlet Globe Radish

A BEAUTIFUL scarlet globe, bright red without a shade of purple, grows from seed to table in three weeks. Of delicious flavor, slow to get pithy. We import this from a French specialist whose seed we find produces Radishes of remarkable uniformity in size, shape, and brilliant color. Two ounces of seed used in partial sowings every ten days, from early Spring, will supply a small family the whole season with this indispensable vegetable. We mail two ounces of this **Vaughan's Scarlet Globe Radish** for 15 cents, with our free 1905 catalogue, a mirror of American Horticulture.

**VAUGHAN'S Seed Store**

**84-86 Randolph St., Chicago 14 Barclay St., New York**


## Forcing Rhubarb and Asparagus Without Expense

RHUBARB and asparagus may be "rushed" in early spring and brought, steaming, to the table from two to four weeks earlier than is usual with the home-grown product. Set half a barrel, with both ends out, over a clump and force it into the ground slightly. Pile fresh stable manure, steaming hot, against the outside of each half-barrel, and lay hotbed sash across the top if weather is still freezing cold. A four-sided box, smaller at top than at bottom, is used for the same purpose, and though more convenient, is not always so available as the half-barrel. Cover the barrel with old bagging or straw. During March, three weeks will give a crop of excellent, tender rhubarb. The plant is not injured by this mild forcing, and can be used for the same purpose next year.

If the plants are thus protected by boxes or barrels in fall before freezing, and packed loosely inside and solidly outside with litter, good, tender stalks may be had even earlier. The litter should be cleared away in February and fermenting manure used as described above.

Coldframes, hotbeds, greenhouses and mushroom caves are all used for forcing rhubarb, but lacking these one may utilize an ordinary root-cellar. The only requirements of this hardy plant are warmth and moisture. It will grow best in a temperature of from 45° to 60°. The less light they have the tenderer the stalks will be and the ruddier their color. The acidity also is less in cellar-grown pie plant, and less sugar is required in cooking. For cellar forcing, plants should be dug any time after frost from beds three or four years set. They should be lightly covered, to prevent alternate freezing and thawing, and allowed to remain outdoors until slightly frozen. The roots may then be packed closely in a box or even on cellar floor. Soil should be filled in between the roots, and the crowns buried from four to six inches. The temperature should be even and the soil moist. In a cold cellar a lighted lantern placed near the plants often supplies enough heat.

A dozen strong roots will supply a small family with a taste of these vegetable, so delectable in earliest spring. The roots once forced in the cellar are thrown away. The family asparagus and rhubarb beds that have had good care for several years ought to be able to spare a few well-stored roots for this purpose every winter.

RENOVATING AN OLD ORCHARD

*Q.* We have just bought an old orchard of apple, pear, and cherry trees, some dead, some diseased, others in a hopeful condition. What can we do with them before spring?

*A.* Get busy at once. Cut down the hopelessly invalided and the dead trees and have them cremated, but save their precious ashes. Grub out the stumps. Saw off smoothly the diseased branches close to the trunk or fork, leaving no stub to invite decay. Chisel out the rotten wood, rake the fallen leaves where larvæ and infection lurk, and make bonfires of all this rubbish. The tree surgeon should use creosote stain, tar, or orchard paint on every amputated part. Fill the chiseled cavities with Portland cement (1 part) and sand (6 parts), applied with a trowel on a mild day, when there is no danger of freezing before the paste hardens. Buy a spraying outfit and write to your State Experiment Station or the Department of Agriculture, Washington, for directions for mixing your own insecticides. Begin to apply them early, and continue to spray with regularity while insects may crawl or fly. Invite chickadees, nuthatches and woodpeckers to help you exterminate insect pests by hanging lumps of suet or marrow-bones in the trees. Have houses for bluebirds ready by March 1st. Spread well-rotted manure or a high-grade commercial fertilizer in the spring, plow or harrow it in, using a disc harrow, if possible, to cut up the old sod. Dig about the roots of trees with a fork, so as not to tear them. Set out well-grown young trees between the old broken rows, which may disappear when the new orchard comes into bearing. Plant red clover or cowpeas for a cover crop, not only to cut green for the cows, but to plow under and add humus, nitrogen and bacteria to the starved soil. Keep a few beehives in the orchard to insure well-fertilized blossoms. The rejuvenated old trees will give you an abundance of fruit until the new orchard crowds them off the field.

AN ASPARAGUS BED

*Q.* I have asked many people how long it will take to make a new asparagus bed bear. The answers vary from one year to seven years. I should be glad to have your judgment and learn just how to go to work and what varieties to plant.

*A.* Much depends upon your stock. Don't buy baby roots or "culls," but select large, vigorous, two-year-old plants of the Colossal, Palmetto, Barr Mammoth and Mammoth Columbian White if you would have all the

**MELLIN'S FOOD BABIES**

**Result of Guessing Contest**

The above portraits were shown in our exhibit at the St. Louis Exposition. We offered $250.00 in gold to the person who could correctly guess the boys and girls in the 20 numbered pictures.

No one guessed 20 correctly.

Mr. George Harrison, Enfield, N. C. was awarded the $250.00 the only person guessing 18 correctly, this being the largest number of correct guesses.

**Mellin's Food received the GRAND PRIZE, higher than a gold medal, the Highest Award of the St. Louis Exposition 1904.**

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*Out From the Northwest it has Come at Last—*

THE GUARANTEED APPLE!

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which for the first time in the history of Horticulture bears a Nursery Guarantee, is propagated, owned and controlled by

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distinguished for exclusive productions, are the most Northern in America. This latest triumph of apple culture, the pride of the State of Minnesota, is named after one of her beautiful silvery lakes, "Minnetonka." The fruit is very large; flesh tender, crisp, sub-acid; the ideal cooking and choicest dessert apple. **"The Minnetonka"** thrives luxuriantly and yields prolifically in the most rigorous climate where all others fail. Season late, keeping **two months longer** than the well-known "Wealthy." **Hardy as an Oak.**

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Every owner of a home should have one or more of "The Minnetonka," pride of the Northwest. Order to-day.

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standard white and green varieties. Empty the ancient treasure of your manure pit into trenches two feet deep and work it well into the soil, which, if inclined to stiffness, should be lightened with sand or sifted ashes. It goes without saying that the plot must be well drained. If the loom is not naturally rich and sandy, make it so. Bury the roots six or eight inches deep in three rows eighteen inches apart, to form the bed, which should have at least a foot of soil beyond the outer rows. Gradually draw the earth around the shoots as they rise, and keep down all weeds. Cover the bed in the autumn with coarse stable manure. Feed the plants generously for two years, when you may confidently expect them to repay you in kind. When well-grown plants are four years old, they should begin to supply the family, and a rightly cultivated bed should last unimpaired through one generation.

#### GERANIUMS IN BLOOM ALL WINTER

*Q.* How can I have geraniums blooming in my sitting-room window by Thanksgiving and keep them gay all winter?

*A.* Make cuttings from old plants in May or after danger from frost, choosing only the most vigorous shoots. Cut close to a joint with a sharp knife, and slit the stem where you put it in the earth. Give the cuttings good, light soil, but not over rich. Sink the pots in the open ground under a shady tree. Usually, cuttings are made too late to insure vigorous plants and early blossoms.

#### A CHEAP HERBACEOUS BORDER

*Q.* There is a part of our home acre where I long to see a hardy herbaceous border about fifty feet long, yet I have no more than ten dollars to spend on it. Is the dream impossible?

*A.* Not if you will wait a year for results and are willing to do much of the necessary work yourself. Set aside a small plot in your vegetable garden for a nursery, and spend half your appropriation, if need be, on having this and the proposed border next the lawn well spaded and manured. Buy only such seeds as you cannot beg, borrow or steal from your friends' gardens. Plant Oriental poppies, Boltonia, sweet-williams, pyrethrums, larkspurs, foxgloves, coreopsis, chrysanthemums, hollyhocks and other old favorites in May. Weed and water them throughout the summer, transplant them to your border in September, cover them with stable litter in the autumn, and look for flowers the next season, with greater and greater profusion each succeeding year. Save a dollar or two for narcissus and other Dutch bulbs. The cheap sorts are very charming. Try to have only flowers of harmonious colors in bloom at once, and distributed from crocus to chrysanthemum time. Do not overlook the decorative and lovely wild flowers, most of which improve surprisingly under cultivation. The tall Canadian goldenrod is superb in the hardy border; so is the cardinal-flower, the mountain laurel, butterfly-weed, columbine, wood or meadow lily, the swamp-rose mallow, the iris, and the meadow-rue among a host of others. Violets make a beautiful edging.

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The construction of this fence is such that no top rail or bottom board is necessary, and only half the usual number of posts are required. This does away with a large item of expense.

The mesh at the bottom is 1¼ x 3 inches, small enough to prevent the escape of the chicks, and grows larger gradually to the top, which offers no secure place for alighting, thereby preventing the poultry from flying over, so fence need be only four or five feet high.

It can be used as a field fence as well as for poultry fence.

Sold by the rod, not by the square foot—in rolls of 10 and 20 rods —50 rods or more delivered F. O. B. nearest depot. Made in widths from 12 to 84 inches. Costs no more to put up than cheaper fencing or netting, and lasts much longer.

We furnish strong steel pipe gates covered with extra heavy Union Lock fencing complete with hinges and latches.

*Write for Catalogue and "A Short Story for Poultry Raisers"*

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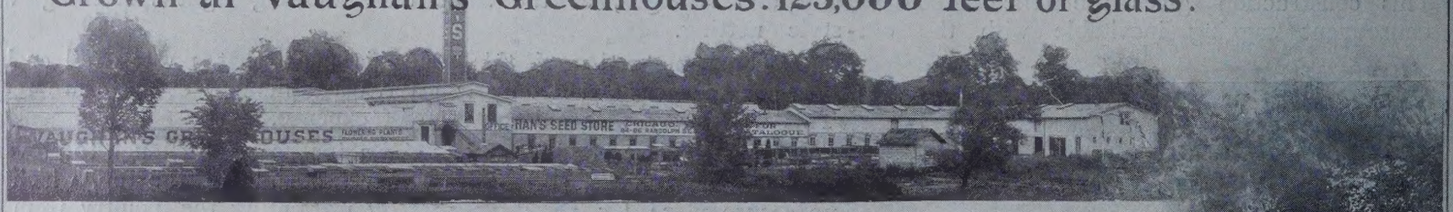


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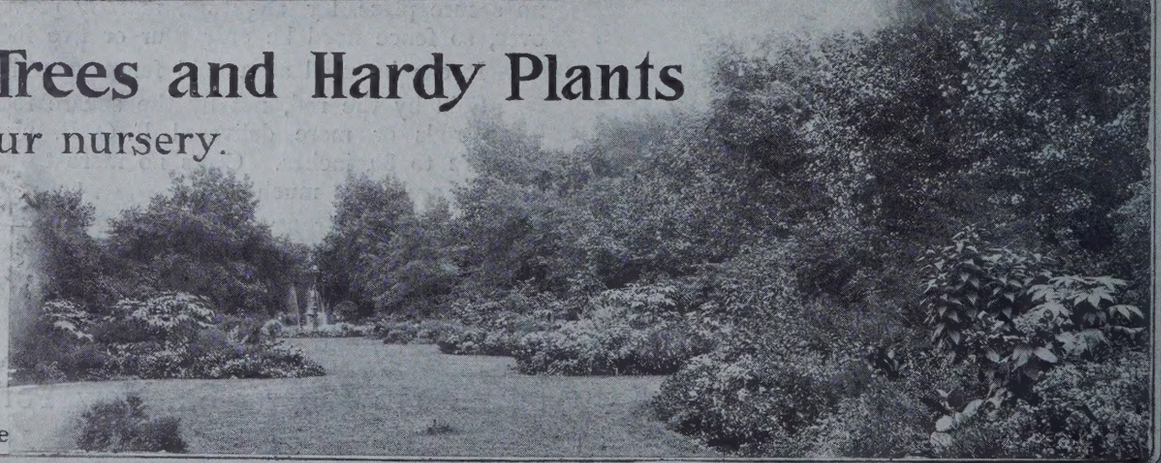

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